COAL AGE

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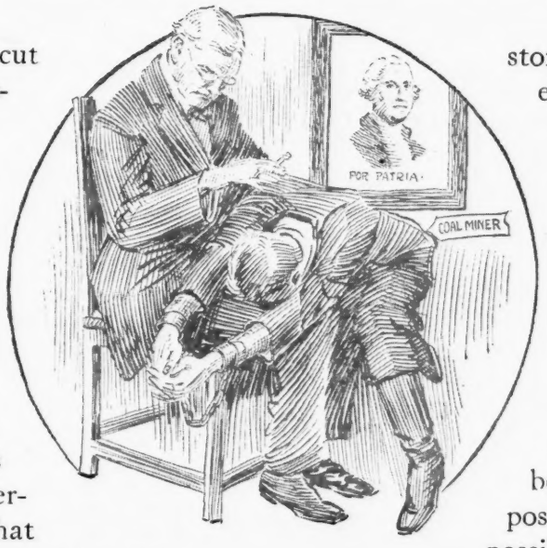
Taking Off the Handcuffs



NOW is the time to cut the strings of certain handicaping influences. The present war makes it necessary that the coal industry rid itself of wrong practices, especially such dealings as foster discontent.

Practically every coal company wears handcuffs of one kind or another. Perhaps the worst handicap that afflicts us is the lack of co-operation between employer and employee. The point at which this factor is most in evidence is in the actual treatment of workmen by foremen and bosses.

Right now is the time to curb or discharge that boss who curses and drives his men by the wrong exercise of authority. Men cannot look up to the fellow who looks down on them. If your foreman or superintendent is unpopular and does not enjoy the confidence and co-operation of those under him, something is radically wrong, and the company that fails to rectify such a condition is most unpatriotic, for it is failing to serve the nation in the way it is expected to serve.

There is another kind of handcuff to eliminate, and that is the commissary or company store whenever and wherever such store is wrongly managed. In many localities it is an open question as to whether or not a coal company should run a commissary at all. But leaving this problem out of consideration, there is one thing certain—no company's store should be operated for the sole purpose of garnering the biggest possible percentage of the miner's earnings. The only time a commissary is defensible is when it is operated as a real benefit to the company's employees.

Recently we heard of a corporation—not a mining company, we are glad to say—that makes its employees draw store checks for full earnings every day. Each week any checks not traded at the company's store are returned for credit on the pay roll, to be paid in cash on the regular payday; or, if the employee prefers, are discounted for cash at 80c. on the dollar.

Now while the coal industry is aligning its ranks for patriotic national service, every man should be stripping himself of all impediments, so as to be ready for any job that is allotted to him. It is our patriotic duty to strike off all handcuffs that in any way lessen production.

Ideas and Suggestions

This is a time when each and all of us must give the best that is in us. We must find new ways of doing things; we must discover short cuts and establish systems leading to higher efficiency. In fact, we must do more work with fewer men and do it in less time. Hundreds of coal-mining men have perfected devices and installed methods that hundreds of other mining men would like to know about. These two pages are the best place to make such information public, and that is one way we can help win the fight we have on our hands. Send us a good idea or suggestion today.—Editor.

Repairing a Headframe

By P. L. Mathews*

A defective timber at the top of the main braces of a wooden headframe caused an accident which resulted in the necessity of some "home-made" repairs. These may prove of interest.

The timber gave way while the cage was hoisting a loaded car, breaking the 10 x 10 crosspiece which supported the double 10 x 10 beams onto which the sheave-wheel bearing boxes were bolted. The beams became loose, and in some way the sheave slipped out and fell down the shaft onto the cage which was, at the time, 110 ft. below. It struck the cross channel iron of the cage and bent it 4 in. out of line, breaking the wheel, which was of the bicycle type, 5 ft. in diameter. The impact tore the rope loose from the hitching at the top of the cage, which fell 12 ft. before the safety catches caught and held it securely.

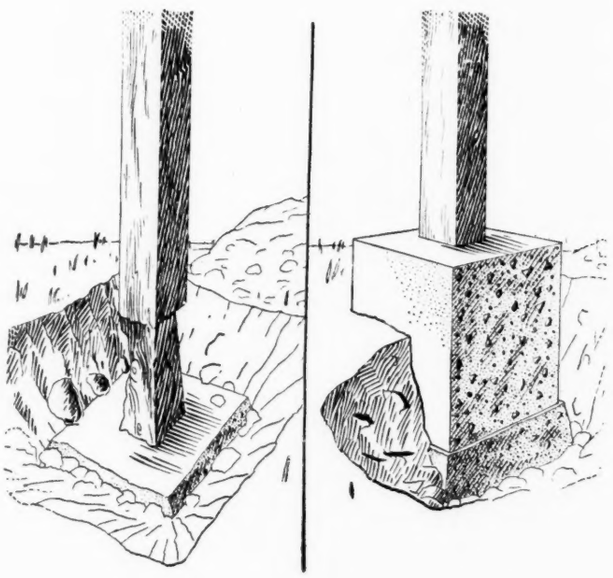
Investigation proved that the primary cause of the accident was the defective timber, which had dry rotted in the center, leaving a deceptive shell. On account of its inaccessibility this had escaped detection. There were other contributory causes, however. The posts of the headframe had rotted below the ground level and this condition had allowed the headframe to settle 6 in. out of plumb, weakening the entire structure.

The headframe was built on the side of a hill, and while the posts had been set on concrete footings, in obtaining the required grade at the mouth of the shaft these had been covered with dirt 3 ft. above the level of the concrete. It was found that the posts were badly decayed throughout this 3 ft. This decay extended in some cases almost to the heart of the timbers, although above the level of the fill they were still sound.

The broken timbers at the top of the headframe were replaced and a temporary sheave wheel installed. Operation was then resumed, but hoisting was done on only one side of the shaft as it was deemed unsafe to trust a loaded car upon the old rope, which in the accident had been badly kinked. Furthermore, the cage was unsafe on account of the bent channel iron, which threw the pull off center and also prevented the safety catches from being replaced.

Work was commenced at once on the decayed posts as their condition made some action imperative in order to avoid a repetition of the accident. To replace these posts meant an expensive and extended shut down, so it was decided to reinforce the decayed parts with concrete, with as little delay in running the mine as possible. There were 14 posts in all, and these were treated four at a time. Work was started on successive Saturday afternoons.

The posts were cut as shown in the accompanying illustration. It was estimated that the core and the cross bracing on the headframe would be sufficient to



DECAYED POST BEFORE AND AFTER CONCRETING

sustain the weight during repairs. This assumption proved correct and no trouble was experienced on that score. After the decayed portion of the timber had been cut away, the remainder was surrounded by a concrete pillar. A mixture of 1:2:4 was used and mixed drier than customary in order to have it harden sufficiently to permit operation by the following Monday. Several pieces of scrap iron were also placed in the forms to give all the weight possible.

This method permitted the mine to be operated without delay, and in five weeks the job was finished, the result proving quite satisfactory. The pillars completely prevented any vibratory motion in the headframe; the weight of the concrete seemingly giving as much, if not more stability than if the posts had been solid to their original foundations.

In due time a new sheave wheel and rope arrived and were installed, but the bent channel of the cage presented another problem. This was solved in the

*Santo Tomas Coal Co. Santo Tomas, Texas.

following manner: The cage was placed at the surface level with several 12 x 12 timbers extending from one side of the shaft to the other under the channel, with sufficient space between the channel and the timbers to permit the operation of three 40-ton jacks. These bent the channel back into shape in short order and permitted the safety catches to be replaced, thus completing the repairs.

Frequency of Aligning Shafting

Lineshafting should be inspected at least twice a year, and if found defective should be repaired. If the structure housing it is of concrete, on a good solid foundation, and if the posts and overhead work are solid, it may be found after several years that there is no appreciable change in alignment of shafting due to the settling of the building or distortion of floors or columns on account of heavy loads.

It is well known that, no matter how solid a concrete floor may be, it is bound to deflect somewhat under load. The greater the load the greater the deflection. If loading on a floor varies from year to year, it is evident that shafting alignment will also vary from year to year, especially if the hangers are supported from an overhead floor, on which such load variations are made. In general, however, floor loads in the average plant are not excessive, and unless the floor above is used for a storeroom, the shafting is not liable to be thrown out of alignment.

Where buildings, posts, overhead work and floors are made of wood, there is an entirely different proposition with which to contend. Often the lumber used in construction is not properly seasoned. After installation, the dimensions of the timber are certain to change. If installed in a room that is damp, the timbers may increase in length, breadth and thickness. If in a dry room, the timber will decrease in size, both longitudinally and laterally.

Put the hangers on this green timber, and all will be O.K. for a time; but when affected by humidity or dryness, it will not be long until the shafting will be observed to follow a zigzag line, and power will be lost in proportion to the disalignment.

Buildings made entirely of wood are the ones that generally warp and change most. If placed on a wooden foundation, the foundation settles and rots; the sills rot; and, after several years, the shafting will be found to be in bad shape, unless attended to, as already stated, about twice a year.

Blowers for Cleaning Machinery

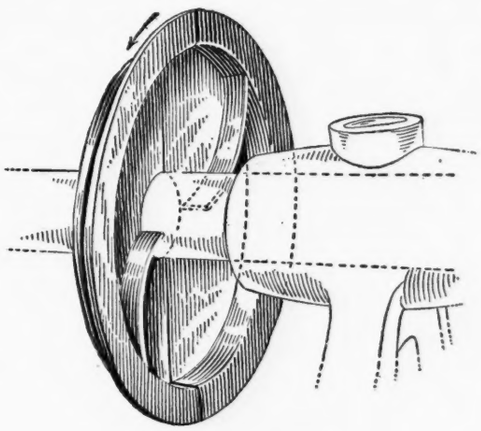
Good dependable machines are now obtainable for doing the cleaning work—for blowing the dust off or out of motors, shelving and elsewhere. Or, they may be used for suction cleaning.

Vacuum-cleaning methods are so well known nowadays that I believe it unnecessary to say more about them here. The advantages of sucking dirt away from a delicate part is readily apparent when compared with the method of blowing or wiping the dirt off of one machine onto another.

These cleaning sets are portable, weigh in the neighborhood of 50 lb., are electrically operated from any electric-lamp socket, and are made to suit the convenience of the cleanerman as much as possible. Cleaners of this kind are inexpensively operated and generally represent a wise investment.

Shaft Oil Shield

The accompanying illustration shows a method that can be used to prevent oil from creeping along a shaft and getting upon belts and pulleys. The disk should be



SHAFT OIL GUARD

put facing the bearing, with the wings pointing in the direction the shaft is to revolve so that any creeping oil will be forced back into the bearing by the slight air pressure created by the wings, says Henry J. Braje in *Power*. The size of disk and the number of the wings can be determined to suit any speed and diameter of shaft.

TYPE OF WHEELBARROW GUARD TO PREVENT MASHED HANDS, USED ON WHEELBARROWS OF SLOSS-SHEFFIELD STEEL AND IRON CO., BIRMINGHAM, ALA.

How Best To Eliminate the Bigger Mine Accidents*

By Frank Haas†

SYNOPSIS—Gas emission varies much under similar conditions in the same seam. It may first progress to a maximum under coal development and then decline. Apparently the coal holds the gas in its interstices. Theories based on oil safety-lamp determinations rest on shaky facts. Some day storage batteries may provide all the power needed for mine operation. Coal dust and mine fires are also considered in this paper.

The larger accidents in coal mines are caused by gas, coal dust and mine fires. To enumerate all that has been done to prevent gas explosions would be a needless repetition of statements with which all mining men are familiar, nor would descriptions of various disasters add much to this subject; instead, it would probably be better to devote ourselves to what is being attempted at the present time and to a consideration of the methods whereby we may hope ultimately to entirely eliminate the dangers now existing.

For the study of any problem, it is essential that we should know as nearly as we are able all past and possible conditions. Otherwise we cannot safely even surmise what the answer to our inquiries may be. When the problem is finally solved, the remedy must be able to meet all possible combinations of conditions. Perhaps this ultimate result may appear hopeless at this time, but any advance toward this goal is real progress. Like many other subjects we find that the deeper we get into this problem the more there is to investigate, and then too there are so many theories which have been evolved in the past and have taken such firm hold that it makes it all the more difficult to interpret our observations without prejudice.

Safety-Lamp Guesses Poor Basis for Theory

As is generally known by mining men, most of the information about firedamp that has been brought down to us, either from literature or actual experience, has been based on the observations of the oil safety lamp. It is not my intention to disparage the virtues of that instrument for detecting gas, but I do deplore the mass of misinformation which has been published on the strength of observations of the safety-lamp cap. Not only is such literature merely inaccurate, it is positively wrong. If we stop to think we shall remember that the oil safety lamp is not an instrument of precision, nor was it originally intended to be such. It simply furnishes an empirical method for estimating gas, and the judgment of the observer is by far the larger factor in the determination. Opinions based on the indications of the safety lamp have been transmitted as proved fact, and have been repeated, amplified and generally misused so that the shaky basis on which the theories rest is now hardly recognizable.

We do not know with any degree of certainty the source of the gas in coal, at what rate it is evolved nor the maximum emission that may be expected. In a previous paper read before your Institute I had occasion to state that I did not agree with the ideas which have heretofore been generally accepted. I have no faith in the theory of occluded gases, nor in the decomposition of the coal, but believe that the coal seam is simply a reservoir for natural gas even as any other porous stratification may be.

During the past year I have had a particularly good opportunity to study this phase of the problem. Something over a year ago the Consolidation Coal Co. put down four shafts for two adjacent mining properties. The depth of each to the Pittsburg seam of coal is about 500 ft., and all conditions as far as they can be observed are the same in both mines. Both of these properties are in a territory where active natural gas wells are of frequent occurrence. It is a matter of record that in all deep mines in the Fairmont region some gas is encountered, and these mines are no exception.

Gas Rose to a Maximum and then Declined

The work of development was carried on simultaneously and continuously. Under these conditions the opportunity was unusually favorable for making comparative observations, at least where conditions, so far as could be determined, were uniform.

Immediately after the air shaft and hoisting shaft were connected and coal was being mined, samples of air were taken each day in all the headings in both mines. This has been continued up to the present time, so that now we have over a year's daily record. The object was not only to find out the total quantity of gas given off, but also if one section of the mine gave off more than another and, finally, what the daily fluctuations were. While this work is not sufficiently advanced for a final presentation of the results, yet a few peculiarities can be pointed out which were not anticipated, and some indications reported which demonstrated how rash it would be to arrive at conclusions on the basis of only a few observations.

Immediately after the headings were driven the gas contents, measured in volume per 24 hours, increased at what might be considered an alarming rate. In Mine No. 87 this rapid increase continued for one month, at which time approximately 200,000 cu.ft. of gas per day was given off. After this the quantity, based on monthly averages, remained practically the same. There were fluctuations from day to day, but such variations are natural for they may readily be caused by inaccuracies of the samples when working with temporary doors and leaky stoppings.

Mine No. 86 likewise had a rapid increase in rate, but in this case the increase continued for about five months until a total of 500,000 cu.ft. of gas per 24 hours was reached, after which the increase ceased; and the amount has been practically uniform for the last six months.

*Paper read on June 6 before the West Virginia Coal Mining Institute, Huntington, W. Va., entitled "Progress in the Elimination of Major Mine Accidents."

†Consulting engineer, the Consolidation Coal Co., Fairmont, W. Va.

If, now, there is any law depending on the composition of the coal or the occlusion of gas, why should we not expect uniform results in these two mines, and why should the rate of increase cease after a certain interval, in face of the fact that the development was carried on at a constantly increasing rate?

Evidently there is no fixed relation between the area opened up and the quantity of gas given off, and certainly no relation between the quantity of gas and the quality of the coal, for the coal was the same in both cases. It appears rather that in the one mine the gas escapes more readily through the joints and fissures, and probably harbors more gas in the reservoirs than the other. The character of the gas is the same in both mines and is nearly pure methane. No traces of any other hydrocarbon are present, and in this it differs from the gas from natural-gas wells, the latter containing variable amounts of other hydrocarbons up to 10 per cent. at times.

We have no reason to believe that the active gas wells in the vicinity contribute any gas to the quantity now given off in the mines. Such wells have been drilled and cemented around the Pittsburg seam of coal in a manner which is considered the most approved method for protecting gas wells, nor are any workings within 100 ft. of the drill holes.

With the fact before us, that we have gas in variable quantities with no visible means of preventing its emission, we must proceed to find methods of handling it. The ventilating system "to dilute, render harmless and carry off the noxious and dangerous gases" will probably be the mainstay of our efforts along this line for some time to come. The method has apparently been thoroughly worked out and, fortunately, is so simple that no trouble is experienced.

It is not until twin, booster and tandem fans are introduced that it becomes complicated and, it may be said, incidentally, not much improved. But the success of the entire system depends on the continued vigilance of human effort and this, as we know, sometimes fails.

If We Only Could Remove Gas Chemically

One of the first methods to dispose of the gas at the face was to burn it as soon as it was formed. I have had no experience or personal knowledge of the method, but it is related that when there was an accumulation of gas in the mine the fire devil was sent in with a torch to burn it up. The method was probably successful in removing the gas, but it is not clear as to what happened to the man who set it off.

Such practice, of course, cannot be tolerated and is not seriously practical now. The suggestion, however, of dealing with this gas at its first appearance is attractive, but no developments up to this time have made it even probable. Methane is not very active chemically, in fact it is comparatively inert, so that any scheme that would involve its solution or chemical change would be difficult at best.

It is, however, susceptible to change without combustion. One method is to mix it with chlorine and expose it either to sunlight or electric-light rays, when a reaction occurs by which various chlorides of carbon are formed, among which are chloroform and carbon tetrachloride. Such a method could not be considered in practice because chlorine gas is more objectionable to health than methane, and the chemical reaction is sometimes, in fact frequently, accompanied by an explosion more violent than that of methane and air. With all its difficulties the idea of converting methane, which is a menace in a mine, to a byproduct of value is an alluring one and will still command some attention.

Storage-Battery Mine Lamp Has Come To Stay

Driven now to the last trench, with gas in variable quantities the emission of which cannot be prevented at the source and which cannot be eliminated when formed, the only resource left is to prevent its ignition until it can be discharged from the mine. The oil safety lamp has been by far the greatest invention in this endeavor, yet it appears that it will have to give way to the electric storage-battery lamp for illuminating purposes. The electric lamp has come to stay. For simplicity and reliability of operation, efficiency and economy, it is preferable to the oil safety lamp; and I believe that within a comparatively short time its use will be almost universal. The oil safety lamp will still be used by the fireboss for advance work and inspection,

BURRELL GAS DETECTOR IN USE IN SAYRE MINES OF SLOSS-SHEFFIELD STEEL AND IRON CO., ALABAMA

although even in this it may in time have to give way to gas detectors such as the new machine designed by Burrell, or a similar type.

The permissible explosives which are now generally used have been a decided advance in the elimination of gas ignition, and while they are not absolutely proof in this respect, we cannot deny that they are giving excellent results. Whether the field in this direction has been exhausted is hard to say.

Electricity in mines is a source of gas ignition, and many improvements can be made rendering the danger less probable. As a motive power it is almost ideal, and its elimination is impracticable, so that such dangers as are involved in its use will have to be separately dealt with; and at the present rate of progress success appears to be assured. The flame-proof motor on mining machines, pumps and haulage locomotives is only the beginning of this work, which is still far from being perfected. The storage-battery haulage locomotive is a big advance, not only providing the flame-proof motor, but also eliminating the sparking of the trolley wire. It is only a short step to storage-battery mining and

drilling machines or even pumps, and with this attained the bare wire in mines will be completely eliminated.

My observations lead me to suppose that the storage-battery mining machine is possible and that the principal objection at the present time is to the first cost of installation; but as this feature is merely comparative, I feel that in time this objection will be overcome.

Of spontaneous combustion in the mines of West Virginia I can say little, as I have known of no case where it occurred and was positively proved against the coal. It has been my opinion where such spontaneous combustion was charged that if it did occur it was due not to the coal but to greasy waste or dirty clothes discarded and left in the mine.

The danger of coal dust can be less readily evaluated than that of firedamp. In the first place coal dust cannot be definitely defined, nor if such definition were possible would it hold for all coals. What may be considered dangerous dust with one coal may not be so with other coals. Naturally, with no definite basis of comparison, individual opinion steps in. One has only to read the frequent controversies which appear in the technical journals to appreciate the apparent hopelessness of even an approximate basis of comparison.

Dustiness Criteria Vague as Lamp Readings

I recall particularly the recent discussion of whether the coal dust from central Pennsylvania should be considered explosive. After reading all the opinions expressed, the fact still remains that some say it isn't and some say it is. The Bureau of Mines say under some conditions it is, and some others say such conditions are hypothetical and practically do not exist; therefore the coal dust is not dangerous.

I have no intention of burdening you with further opinions on this subject, nor shall I suggest a definition of explosive dust. To those who are familiar with observations in mines there is a certain instinct which prompts them to report the mine as dusty or as free from dust and so convey the impression as to whether the mine is safe in this respect or not. In the absence of something better such opinions naturally must stand.

Whatever may be the virtue of a wet mine it does follow that a wet mine is never reported as dusty. So far as the mines of West Virginia are concerned, I believe that the wetting of the mine is the most practical method of safeguarding against dust explosions. There are various methods by which this may be done, all of which are good if they accomplish the purpose. I do not believe that stone dusting is practical in our mines, principally because our methods of mining are not adapted to such a system and furthermore because moist conditions are in our mines unobjectionable.

With ordinary precautions such as are now used in our mines I would consider it very difficult to get a dust explosion unless it followed an extensive explosion of firedamp. Blownout shots are comparatively rare with permissible explosives if used within the charge limit. In the exclusive use of permissible explosives, handled in conformity with the local conditions, we have our greatest defense against dust explosions, excepting of course an initial firedamp explosion. Short-circuiting of electric wires is a possible source of ignition, but there must be much flame and an atmosphere highly charged with dry and floating dust.

Evidently our safeguards against dust explosions lie almost entirely in the prevention of the original explosion and, fortunately, all the safeguards against gas explosions hold equally good for dust. I doubt very much whether with all the methods which have been suggested to prevent the propagation of an explosion once started there is a single one which can be considered as positive, but there is this consolation, that if all the impediments that can be thrown in its way can be employed, the hazard is diminished to a very small possibility.

There is a persistent effort being made to so adjust our conditions that the loose endgate on the mine car can be eliminated. It is generally accepted that this is the greatest source of dust in the mines. Not much progress has been made, however, for the closed endgate seems to conflict with all the adopted methods of handling coal.

In mine fires we find the menace which most frequently threatens our coal mines. The loss of life has not been so large nor so frequent as with the two other dangers just discussed, but the past records of mine fires show that they can produce some of the worst catastrophies in the industry. Mine fires occur far more frequently than is generally known, which may account for the fact that apparently less importance is attached to them than to gas or dust.

Mine Fire Is Perhaps Least Solvable of All

Mine fires are practically started by the same causes as are responsible for gas and dust explosions, but in this instance the conditions are always favorable. A fire once started will continually grow in magnitude, and the difficulty of handling it will grow even more rapidly. There are no natural obstacles in the way of the propagation of a fire and left to itself it will, in a comparatively short time, spread over an entire mine with ruinous effect.

The most frequent cause of mine fires is roof falls that break down either the trolley wire or feed line of the electric current. Should this occur during working hours it can be relieved with but small damage, but as it frequently happens at night when it can only be discovered by the fireboss or possibly by a pumper in the mine, the fire has an opportunity to obtain a good start, particularly if it should occur in the direct air current.

We still have with us the man who insists on testing a stopping with an open light to see whether it leaks. This practice is so foolish that it is difficult to determine when it does happen, as the man will promptly deny it. There is very good evidence to believe that the most recent mine fire in the Fairmont field, and also one of the most disastrous to property, was caused in just this way.

Shotfiring is still a frequent cause of mine accidents. The practice of leaving the mine immediately after a shot is fired and not returning till the next day is bad, but it is a practice hard to break up. Permissible explosives, if in good condition and properly handled, will not fire the coal, but these conditions are not always maintained and it is difficult to determine just what the cause has been. At the last meeting of our institute there was quite a discussion on mine fires, and at that time the statement was made that electricity was the most frequent cause of such fires. It was also suggested

that for this reason electricity should be eliminated from the mines.

In my opinion it would be an extreme hardship to the mining industry if electricity, which apparently now is the ideal method of power transmission, was to be eliminated. It is reasonable to suppose that the element of danger resulting from its use can be minimized. The demands of this country, not only at this but at all times, are that coal must be mined not only safely but cheaply, and I believe that this can be accomplished without such an extreme measure as the elimination of electrical machinery.

Who's Who In Coal Mining

Cadwallader Evans

There's a very old saying that "A rolling stone gathers no moss," and this statement may hold true often enough to justify its perpetuation. However, if we regard experience as a certain type of moss, then a bit of rolling is one good way to accumulate a good stock of said experience. At any rate, "Cad" Evans, the present general superintendent of the Delaware & Hudson Coal Co., in the northern anthracite field of Pennsylvania, has done quite a lot of rolling during the interval of time that has elapsed since he left college and started out "on his own."

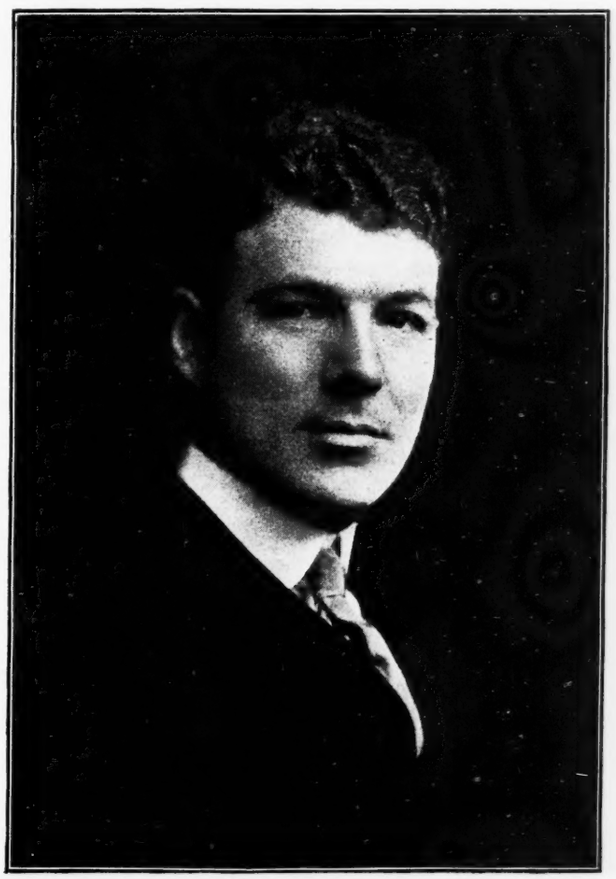
Mr. Evans is a very young man to hold down such an important job, and there is little doubt that the large and varied experience he has crowded into such few years is entirely responsible for his substantial success. Mr. Evans' chief aim in life has been the accumulation of real information pertaining to his engineering work. He has always entertained a wholesome fear of ruts and has successfully hurdled every ditch that was calculated to confine his activities and cause him to jog along monotonously in one fixed direction.

Mr. Evans is a Pennsylvanian by birth, having been born in Pittsburgh in 1880. After finishing his course in the Pittsburgh High School, he entered Lehigh University, graduating as a mechanical engineer in 1901. In college he gave evidence of what might be expected of him later in life for during his student days he took an active part in university affairs and was manager of this, that, and the other thing.

Immediately after graduation he entered the employ of the Oliver Iron and Steel Co. in Pittsburgh, and after remaining with them for about a year, he became connected with the Blaine Coal Co. at Elizabeth, Penn., where he served in various positions, selling coal on the road, purchasing supplies in the home office and finally acting as mine superintendent. In 1905 he identified himself with the Macon-Evans Varnish Co., handling and manufacturing insulating varnish. After two years in this work he again returned to the mining business, accepting a position as general manager of the Pittsburgh-Surman Gold Dredging Co. at Paramaribo, Dutch Guiana. It was here that he became quite familiar with dredging operations, and this experience has been helpful to him many times since then.

From 1909 to 1911 Mr. Evans was superintendent for the estate of Henry W. Oliver in Pittsburgh, and only left Mr. Oliver's employ in 1912 to accept a place as general manager of the Acadia Coal Co. at Stellarton, Nova Scotia. He remained in Canada until 1915, when he returned to the United States and started in with the D. & H. Co. as engineer in charge of the introduction of mining machines in the company's hard-coal mines. Five months later he was made assistant general superintendent, and in June, 1916, was advanced to the position of general superintendent in charge of all the company's mines, which position he still occupies.

Mr. Evans' mining experience is perhaps as diversified as that of any man near his own age in this country. In addition to his familiarity with both bituminous and anthracite mining, he gained a valuable training in coke



CADWALLADER EVANS
General superintendent of the Delaware & Hudson Coal Co.

manufacture through his association with the late Fred Keighley, one of the most celebrated coke experts that the Connellsville region has ever produced.

Cad Evans is the type of man who has that faculty of utilizing to the very best advantage every available minute of his time. He views whatever he does seriously, and although not a grind, he is forever up and at it, always giving to the job in hand the very best that is in him. Impulse has no place in his makeup, and whatever success he has attained has been due solely to his ability to base decisions on a careful analysis of the facts.

He is a member of the University Club in Pittsburgh, the Mining Society of Novo Scotia, the Engineers' Society of Western Pennsylvania, the Engineers' Society of Northeastern Pennsylvania, the American Society of Mechanical Engineers and the American Institute of Mining Engineers.

Our Part in the War—II

SYNOPSIS—The editors of more than 100 of the nation's business papers met in Washington in closed conference May 25 and were addressed by members of the President's cabinet and men holding important positions on the advisory commission of the Council of National Defense. The conference was designed to promote the more effective use of the business energies of the country by a closer coöperation of the business press and its readers with the Government. Extracts from the talks of the Secretary of the Navy, the Secretary of the Interior, Secretary of War and the Secretary of Labor are here printed.

Secretary Daniels in his address said: The first need of the navy is men. I am happy to tell you that when the call came for a new enlistment in the navy the young men in America responded so handsomely that we had to tell them they must stay at home until we could get more ships. Naval officers are enthusiastic over the type of young men we are now getting.

36,000 Engineers Enlisted in Navy

We must have ships, and in this day we must have ideas. We must have enlisted in the navy, not merely skilled officers and skilled men, but we must have inventors and scientists, and engineers, and I am happy to say to you that, responding to the call of the President, there are now enlisted 36,000 engineers in America in the navy, and they are day and night testing and experimenting with new forms of offensive in war, because the American spirit is not willing to continue in war merely on a defensive line. We must contribute to the full in every way in this great war that is possible, but I have the hope—I have the faith, that we shall find a method to deal with this submarine warfare which shall follow the Farragut method of "Damn the torpedoes, go ahead."

Secretary Lane Tells Why We Are Fighting

Franklin K. Lane, Secretary of the Interior, next addressed the editors. He said:

The size of this war no one can magnify; no one has the mind that can grasp figures such as this war involves—a war with thirty million people in arms, a war in which five million people have passed over to the Great Beyond, a war in which it has been necessary to mobilize every resource of every country on the face of the round globe. Nothing comparable with it has ever been dreamed of by man; and we are a part of it now, and why are we a part of it?

I find that people have short memories; I find that we are a kindly and a sympathetic people, who cannot maintain in ourselves a consciousness of bitterness for any length of time. I find the question constantly put, "Why are we fighting Germany?" And I find too a difficulty in the minds of many to realize the abstraction "Democracy." How is Democracy imperilled? Why should I send my boy to France to fight for Democracy? Why should you spend all your tens of thousands in a fight for this abstraction, Democracy?

It took us over two years on this side of the water to understand the significance of this war. We saw Belgium invaded; we had sympathy for Belgium. Belgium was a little country; Belgium was a country that had done no harm to any one, and our heart went out to Belgium. We saw Liege and Louvain, and we heard Cardinal Mercier, but we did not understand their significance. That is the plain fact.

The Purpose of Germany Is Now Plain

But now, after two years and a half, in which the whole purpose of Germany has been developed, we can plainly see that translated into American history, and in the terms of our past, Liege stands for Bunker Hill and Louvain for Lexington, and Cardinal Mercier is a Patrick Henry.

We are fighting Germany because Germany insisted that we should fight her; she violated all our rights, she attacked us, and we saw, as time went on, that there would be no freedom for us, that Bunker Hill and Lexington and all the proud names of the past would be idle, valueless, unless we were willing to assert our duty, if you please; unless we were willing to let our sympathies take concrete shape, and support the principles in which we believe, so that there might be freedom upon the land and freedon upon the sea as well.

People say these things are of the past—Belgium and France and Russia and the "Lusitania" and the "Sussex"—that those things are all of the past—why bring them up now? My friends, those who talk in that way simply fail to realize that the philosophy, the purpose, the determination of Germany could not be realized by the world until Germany showed to what extent she would go. Belgium and the "Lusitania" and the "Sussex" are but bits of evidence which, put together, bring forcibly to the mind this one thing: That government by the soldier is not consistent with government by the people.

Germany is a great power; the Germans are a wonderful people; but Germany has a will to rule that is inconsistent with our determination that Government by the people shall live.

Germany a Combination of Two Things

Germany is a combination of two things—of a survival and of an invention. She is a combination, in her government, of the feudalism of the 13th century, combined with the inventive genius and the organization and the methods of the 19th century. Feudalism plus science is what she represents, and feudalism plus science, is fighting today against Democracy plus science, and we must determine which shall be the dominant one on the face of the earth, because they are irreconcilables—just as irreconcilable as slavery in the South and freedom in the north. And Germany willing to go to any length in order to see that its philosophy persists.

Leave them alone, within their own territory; we have no quarrel with Germany's desire to develop as Germany; but we know perfectly well now that the system which she represents is one that makes for the aggressive conquest of the world, just as surely as the system that Mahomet tried to carry out centuries ago—and Mahomet tried to carry out his system by methods that were as far from the civilized standards of his day as are the methods that Germany has attempted to the methods of our day—the dropping of bombs from dirigibles upon harmless civilians, the submarine striking in the dark at harmless

women and children, and the scattering of all kinds of evils in the name of war.

The very fiend of war himself would not stand for those things that have been done in his name during these past two years.

Germany Would Demand Canada as an Indemnity

It may be wrong for a people to be governed by their hearts; it may be that we should not allow our sympathies to be aroused, but there comes a time when we realize that sympathy develops into self-interest, and when you review the situation as it exists in Europe, and as it has existed, no man can seriously deny that our interest as a nation and as a democratic people are involved in this war, because the power that would ruthlessly tear up a treaty with Belgium, that would invade France, that would do the things that have been done to a neutral nation—indeed to all neutral nations upon the seas—that power would certainly demand from an overwhelmed England, Canada on the north by way of indemnity. Then our three thousand miles of border would be threatened for all time to come, and we would be living in fear.

And so when you appeal to the coal men to make a fair price on coal, when you appeal to the railroad men to give cars so that traffic can move, and to make their rules so that the service that the country needs can be given, when you appeal to the copper men to come along with their supply, when you appeal to the farmer to develop larger crops, when you appeal to the warehouse man to handle his business so that we will not be the subjects of speculation, when you appeal to all the business interests of the United States—the great interests of the United States that you represent, you will have behind you always the thought that we cannot revert to the old days of feudalism and monarchy, and that we are fighting for a type of freedom that was born in the United States.

If you will have in your souls that idea, then the people of the United States will be fired, as they are not fired today, with a feeling that this fight is their fight; that it is not far off across the water and upon neighboring continents, but is a thing vital and real to the people of the United States—as real as the war between the states, more real than the war with Spain, and as real as the War of the Revolution, and that we are willing to make the sacrifices that those men made. I saw the other day at Yorktown a simple gravestone, and on it were these words, "Thomas Nelson, Governor of Virginia. He gave his all for liberty." And that is the proudest eulogy that any man can have.

Baker Says Germany Is Slave of Industrial Ambitions

The next speaker was Secretary Newton D. Baker, who said:

We have taken the brain of man and put it on the anvil of invention, and brought out all manner of physical and mechanical contrivances, inventions, aids and appliances, easing the burden of doing the physical work of the world; and yet, in the very nature of that process, of consuming the earth and converting it into new forms and agencies for service and helpfulness, the question is not improper as to whether we have not created a bigger servant than we can manage.

I believe that the inspiration of the impossible political philosophy which, at present seems to govern the German Empire, is born of industrialism. I suspect that the motive of the Pan-German movement, the Berlin-Bagdad movement, the Bagdad Railroad controversy—I suspect that practically all of the major things that have been involved in that diplomacy of middle Europe for the past twenty-five or thirty years are based upon industrial aspirations and ambitions, and if we look at it with perfect calmness, I think we can say, in an uncritical or, at least, is an unblaming spirit, that the German ruling mind has become so obsessed with the grandeur of industrial supremacy that it has completely lost sense of the existence of moral standards.

Individual Germans Not Bad

You and I know many Germans. Many of them have been our personal acquaintances and our friends, and a more gentle more neighborly more kindly and more orderly set of acquaintances none of us ever had. It is not in their nature to spread poisoned candy and to poison wells, and to commit assassination, as a process of war upon the sea; it is no more a part of their nature than of anybody's else to resort to barbarity; but when the great obsession comes, when the nervous energies of a people are devoted for a continuous number of years to the idea of mechanical and industrial supremacy, and the moral balance is lost or withdrawn, then such results as we now see come to pass.

The world must have peace. The present war is costing something more than sixty million dollars a day in money—probably nearer a hundred million—and more than ten thousand lives of human beings a day, and every day the war continues the world is that much poorer in its accumulations, in its resources, and in its men. I think that all believe that every resource was exhausted before our entry into this war took place, and I think every thinking man will agree that there is now no way to reëstablish peace on this troubled and bereft planet, except by the exercise of the superior force of the United States.

Business houses will not be able to do as they used to do; workers in industrial establishments, miners who are working underground, everybody is going to be asked to give up, or, at least, to permit the temporary obstruction of some of these deeply embedded habitual modes of action and thought, and, as a consequence, we are all going to be in a more or less disturbed state of mind; things are not going to be as they usually are, and so our minds are going to be filled with questions as to whether the things which are in an unusual state are in a right or a profitable state.

Secretary Wilson Says Country Is Facing Its Biggest Crisis

Secretary of Labor Wilson in his address made the following remarks:

Our country is facing—in fact, going through the greatest crisis that has ever confronted it. My observation has been that possibly 90 or 95 per cent. of our people are thoroughly in sympathy with the course that has been pursued in our international affairs, but I doubt if there is 10 per cent. of our people who realize the tremendous task that is before us. Modern warfare is entirely different from that of ancient times. Formerly an army might be an army of invasion, and live almost entirely upon the country through which it was passing, with a

comparatively small number of people furnishing the necessary munitions for its sustenance and support.

That has all been changed, and under warfare as it is now conducted more people are required in the industries in the rear for the support of an army than are required in the trenches at the front. Our country has been built up almost entirely upon the pioneer spirit, and the pioneer spirit is conducive to the development of individualism.

It is only in a moderate way that we have been able to coördinate and organize our industries. They have not been organized in the manner that is necessary to meet the emergency we are now facing. One of our great problems will be the problem of mobility, the changing rapidly from one line of industry to another line of industry, as the emergencies may require the change.

That means also the mobility of labor, because you cannot transfer your activities from one line of industry to another line of industry without transferring your workers from the one line to the other. It means also the utilizing of one kind of skill that is akin to another kind of skill, rather than the same kind of skill, and when you undertake that in our industry, it means friction among the workers themselves. In their efforts to protect themselves in their respective trades, to maintain the highest possible standard of wages and the best conditions obtainable, they have set up certain standards, certain limitations, certain regulations that they insist upon being complied with.

Labor Must Remove Certain Limitations

To meet our emergency now will require the removal of a great many of those standards, limitations, and regulations. They cannot be removed arbitrarily; our people still have that individual spirit which would resent the attempt on your part, the attempt on the part of the Government to crush down their throats any of these changes. When the changes are made, as they must eventually be made, they will have to be made in consultation with not only those who are the managers of industry, but those who are the representatives of the workers; and it is at that point that the Department of Labor of the United States Government and the various state departments of labor can be of service.

One of the functions that has devolved upon the Department of Labor, one of the things it was created to do, was to negotiate disputes arising between employers and employees, in order that industrial peace might be maintained. There is need for a governmental agency of that kind in times of peace; there is a greater need for it in times of war, when every energy we possess must be conserved and utilized to its utmost, in order to secure the standard of efficiency necessary for the protection of our institutions.

It has been the policy of the Department of Labor, and, I think, the policy of the various state departments having similar authority, not to endeavor to impose its viewpoint upon either the workers or the managements in any trade dispute that may arise, but rather to find some common ground that will be mutually acceptable, even though it may not be mutually satisfactory. In other words, the work of mediation is not a judicial work; it is not a judicial function; it is not to hear both sides and then determine the rights and the wrongs of the situation, and to pass and enforce its decision.

The work is diplomatic rather than judicial, and it is in that spirit that we must approach the problem of the mobilizing of labor in the present crisis.

As an illustration, I may say that I have just returned from central Pennsylvania, where we had a convention representing all of the coal miners of that great bituminous coal field. It is one of the coal fields upon which the industries of New England, New York, New Jersey and Pennsylvania are dependent for their supply of fuel to conduct their operations.

Miners Ignored Their Contract

The miners failed to realize the obligation they were under, but they had been face to face with a difficult problem, the first part of which was that the cost of living, of some of the articles of food ordinarily used in a working man's family, had gone to almost prohibitive prices. But even that had not made them particularly uneasy, until the condition arrived when those coal operators who had coal loose, available to put upon the open market, aside from their usual annual contracts, were able to compel the consumer to pay $4.50, $5, $5.50 and $6 a ton for coal that the miner knew could be produced and put on the car at from $1.50 to $1.75 a ton; and with the high cost of living on the one side, and the fancy prices obtained for spot coal upon the other, a condition was created that placed the miner in a frame of mind where he cared nothing whatever for his contract, and insisted simply upon securing a tremendous increase in his wages, to meet the increased cost of living.

Now, most of the coal districts had settled upon a basis of 20 per cent. increase, voluntarily granted by the operators without any threat of a suspension of work, but by virtue of and in recognition on the part of coal operators that the increased cost of living warranted the granting of an increased rate, and that that was to be met by the increased rate which they, in turn, had received for their coal. For central Pennsylvania miners to have insisted upon a 33 per cent. increase—which they were insisting upon—with the others having accepted a 20 per cent. increase, would have meant that just as soon as the central Pennsylvania coal operators conceded 33 per cent. increase in the mining rate, a disturbing factor would have been injected into every other coal field in the country, and the supply of coal, which is already short, would have been made shorter by the disturbance growing out of the condition thus created.

The situation had to be dealt with in an entirely different way, and we proceeded to appeal first to their honor—that they were under obligations to continue under the old contract; second, to their patriotism, and third to their spirit of fair play to all of the rest of the country; and by appealing to those, we were able to secure an adjustment of that difficulty and to keep the wheels of industry rolling in our eastern plants.

The Department of Labor does not seek in any of its activities to supersede the activities of the state departments of labor or of the state departments of agriculture. We will simply undertake to supplement the work that they are doing, and to extend it and connect it and coördinate it beyond state lines, where they have not the power and authority to go.

The Foreign Coal Markets

By A. T. Shurick

SYNOPSIS—Conforming with our custom, we herewith present an annual review of the coal situation in the chief centers of the world. The disruption in the established channels of commerce is presenting unexpected opportunities to American coal exporters and makes an article of this kind of particular interest. The following text has been prepared for the 1917 edition of the "Mineral Industry," and this advance publication is made possible by the special courtesy of the publishers.

Australia

The coal output of New South Wales for 1915 amounted to 9,449,008 tons, showing a decrease of 941,614 tons as compared with 1914. Exports in 1915 amounted to 4,668,394 tons as compared with 5,868,033 tons in 1914. About half of these exports were to overseas ports, the balance being to other Australian sections.

The northern district continues to be the heaviest producer, putting out 6,307,015 tons in 1915 as compared with 2,261,398 tons in the southern district and 880,595 tons in the western district. The reduction in output in 1915 was due in part to the restricted demand for coal and also to extended labor difficulties. In spite of the reduced output, however, the production of machine-mined coal showed a moderate increase, being 2,817,072 tons in 1915 as compared with 2,775,921 tons in 1914.

The output of coke in 1915 amounted to 417,753 tons, showing an increase of 112,953 tons as compared with 1914. There was a total of 833 coke ovens in blast, while 218 have been completed but are not working; 58 are in the course of construction. It is interesting to note that a battery of 66 Semet Solvay byproduct ovens was constructed during the year, while 33 more ovens were started.

The State of Victoria produced 588,104 tons in 1915, showing a decrease of 29,432 tons as compared with the preceding year. The bulk of this production continues to originate from the state mines at Wonthaggi, which produced 528,922 tons during the year.

New Zealand produced in 1915 2,208,624 tons as compared with 2,275,593 tons in 1914. Most of this coal is produced in the West Coast (South Island) inspection district, the output there in 1915 amounting to 1,278,994 tons. Of the total production in 1915, 1,267,940 tons are classified as bituminous and semibituminous, 725,000 tons as brown coal and the balance as pitch coal and lignite. No new colliery operations were commenced during the year or any new fields of importance discovered, though large areas of coal were proved up.

The annual consumption of coal in New Zealand amounts to about 3,000,000 tons, of which 350,000 tons is ordinarily imported, the coal carrying a war tax of 1 per cent. at the present time. The better grades of coal sell at about $4 to $4.85 at the mines, with screenings around $3 per ton. At retail, prices to the consumer range from $9 to $10 per ton, though all these figures are about 30 per cent. higher than they were at the beginning of the war.

The coal production of Queensland in 1915 amounted to 1,024,273 tons, showing a decline of 29,717 tons as compared with 1914. The total number of collieries at work in 1915 was 44.

Argentina

The total imports of coal into Argentina from the United States in 1916 amounted to 921,969 tons as compared with 786,967 tons in 1915. In 1914 there was 3,421,517 tons of coal imported from all sources, which declined to 2,513,887 tons in 1915, while the 1916 figures will doubtless show a still further falling off. As was to be expected, the greatest decline in imports occurred in shipments from Great Britain, which have fallen off heavily since the beginning of the war, the tonnage in 1913 being 1,927,387 as compared with 1,266,579 in 1914 and only 525,756 tons in 1915.

The shortage became quite pronounced early in 1916, and the Government ordered an inventory of all the available supplies. A plan that was also seriously considered involved the purchase of 10,000 tons of coal from South Africa, which it was estimated would cost about $22 per ton delivered. As a result of these unusual conditions there was a great deal of activity in the exploration and development of possible local supplies.

Austria-Hungary

The hard-coal production of the dual monarchy for 1915 amounted to 16,083,074 tons as compared with 15,411,369 tons in 1914. During the first eight months of 1916, Austria alone produced 11,765,000 metric tons, which compares with 10,693,000 tons for the same period in 1915. The output of brown coal for the same period was 14,600,000 tons in 1915 and 15,800,000 tons in 1916. The results indicate that this country has succeeded in maintaining its coal output in a fairly satisfactory manner during the war period.

By far the largest proportion of the brown coal mined in Austria originates in the Carlsbad district of Bohemia, this section producing approximately 20 million tons of the total production of slightly over 24 million tons mined in the whole of Austria. The decrease in the brown-coal production for the whole of Austria in 1915 amounted to 7⅓ per cent. as compared with 1914.

The production of coke in Austria-Hungary in 1915 amounted to 1,907,648 tons as compared with 2,189,913 tons in 1914. The coke output of Austria alone during the first eight months of 1916 showed an increase of 500,000 metric tons, amounting roughly to 1,700,000 tons. This increase occurred largely in the Ostiau district.

Belgium

Statistics emanating from German sources give the production for the first half year of 1916 as follows: Coal, 8,478,732 tons; coke, 408,812 tons; briquets, 1,077,735 tons. This compares with the full year 1915 as follows: Coal, 14,244,000 tons; coke, 484,000 tons; briquets, 1,202,000 tons.

Considerable tonnages of Belgian coal have been exported since the beginning of the war, some 700,000 tons having been shipped into Holland in 1915. The Germans

started the development of a new coal field at Limbourg, including the construction of byproduct ovens toward the close of 1916, but with the deportation of miners this work ceased.

From information received through Holland, the Belgian coal industry was reported as very active during the last half of the year, and six new mines had been opened in the Hainaut basin alone.

Canada

Preliminary estimates place the coal production of Canada in 1916 at 14,365,000 short tons as compared with 13,276,023 tons in 1915 and 13,637,529 tons in 1914. The increase was made almost entirely in Alberta and British Columbia, the former producing about 1,100,000 tons more, and the latter approximately 600,000 tons more, while Nova Scotia showed a loss of about 500,000 tons.

Exports of bituminous coal from this country to Canada showed a tremendous increase, amounting to 12,849,589 tons in 1916 as compared with 8,464,457 tons in 1915. Coke imports into Canada increased about 100,000 tons, amounting to 649,675 tons in 1916.

Chile

The imports of coal into Chile show an extraordinarily heavy decline in 1915, amounting to only 411,317 tons as compared with 1,257,559 tons in 1914 and 1,540,747 tons in 1913. The heaviest decline was in shipments from Great Britain, which in 1913 exported 924,430 tons to Chile as compared with only 201,718 tons in 1915. Australia exported 457,873 tons in 1913 and only 155,541 tons in 1915.

Chile has been thrown largely on her own resources for coal, due to the practical cessation of shipments from Great Britain and the heavy restrictions put upon exports from Australia. Exporters from this latter country are required to make a deposit amounting to about $24,000 per normal cargo as assurance that the coal will not get into the hands of any of the enemy countries.

In September, 1916, the Chilian State Railways concluded contracts with the Chilian mines for supplying a quarter of a million tons of coal during 1917 at about $11 per ton. The local mines have been furnishing the coal for the railways since 1915, but in 1914 they furnished only about 16 per cent. and in 1913 about 45 per cent.

China

There is only meager data concerning the coal production of China, the best available information being a statement issued by the Chinese Ministry of Agriculture and Commerce, which estimates that the annual output is now about 24 million tons per annum, the following districts producing a million or more tons: Manchuria, 1,300,000 tons; Chihli, 2,160,000 tons; Shansi, 2,500,000 tons, and Hunan, 5,000,000 tons. If this production of 24 million tons per annum is correct, the output shows an enormous increase as compared with 1913, when the director of the Chinese Geological Survey estimated the output at 15 million tons.

The Chinese exports have shown a decline since the beginning of the war, the 1915 figure being 1,315,542 tons as compared with 2,500,627 tons in 1914. The imports from Japan alone exceed the exports, the respective figures being 2,976,036 tons in 1914 and 2,629,999 tons in 1915. None was received from Great Britain, which, in the preceding year, exported 92,076 tons of coal to China.

There has been serious interruption to transportation in China during the past year, due principally to low water stages, which have created shortages in some districts attaining almost to the stage of famine at times. Districts having adequate transportation facilities have generally had plentiful fuel supplies.

Egypt

For the first half of 1916 the Egyptian imports of coal amounted to 369,683 metric tons as compared with 490,054 tons in the same period of 1915. The total imports in 1915 amounted to 1,700,074 tons as compared with 1,435,882 tons in 1914 and 1,721,415 tons in 1913. Practically all of the imports originate in Great Britain. The total value of the British fuel exports to Egypt in 1915 amounted to $10,427,560, those from the United States amounting to $1,125,194, these being the only two countries furnishing coal to Egypt in that year.

France

The French coal production for 1916 is estimated at nearly 22 million tons, or about one million tons more than in 1915. The production increased from 1,500,000 tons in November to 1,861,000 tons in December, due entirely to the release of the miners belonging to the classes from 1891 to 1899 from military service, these men having returned to the pits. At the close of the year the miners belonging to the classes from 1900 to 1902 were also returned to the mines, so that the outlook for 1917 production is even better.

The fuel supply question in France was a most serious problem during the year. Arrangements have been considered for obtaining approximately two million tons a month of British coal, but owing to the scarcity of transportation facilities, the rate of imports had declined to about 1,500,000 tons per month. It was hoped, however, that this question of transportation would be relieved before very long, and in addition efforts were being made to increase the French production by the demobilization of several thousand miners from the army. Transportation facilities within the Republic itself proved inadequate during the closing months of 1916, due largely to freezing and heavy ice on the canals; but this was relieved by diverting a large number of military trucks as well as men from the army to haul coal direct to the markets.

The gradual extension of the censorship to cover statistics of all kinds has made it exceedingly difficult to obtain any authentic information concerning the coal situation. The latest data available regarding the French imports are for the first half of 1916, during which period there was 9,982,939 tons of coal, coke, etc., imported as compared with 9,193,237 tons for the first half of 1915.

The imports for the twelve months to the middle of 1916 amounted to approximately 20 million tons, while the production was about the same, so that the apparent total fuel supply for that period was slightly less than 40 million tons. The consumption for the previous year amounted to about 35 million tons, but in spite of this increase of 5 million tons the demand was usually in excess of the supply. The requirements of the railroads,

municipal plants, etc., showed no material increase, but there was a large extra call for fuel from metallurgical industries.

The wholesale price of coal in Paris in March, 1916, was $23.16 per metric ton as compared with $11.58 to $12.55 in normal times. English anthracite was quoted at $25.09 to $26.06 as compared with $13.50 under normal conditions.

Because of the excessive freight rates there seems to be little prospect of American operators being able to enter largely into the French market. American coal certainly cannot become a factor in those markets with a carrying charge in excess of $15 per ton, whereas ocean freights to France ranged up to $60 per ton and higher during the early part of 1917.

Germany

Scarcely any information is available concerning conditions in the German coal industry for 1916. Perhaps the best index to the situation is a report of the Rhenish Brown Coal Briquet Syndicate for the fiscal period 1915-16. During this time, the output of crude brown coal was 21,642,845 tons as compared with 18,898,088 tons the preceding year. An item of interest came from Breslau early in the year regarding additions to the byproduct coke equipment at the Royal Coal Mine in Upper Silesia. This plant consists of 180 coke ovens, and it was planned to make an addition of 30 new ones. The coke plants of Upper Silesia produce about 2,000,000 tons of coke per annum and employ nearly 5000 men.

An announcement was also made early in the year of a prolongation of the Rhenish Westphalian Coal Syndicate until March, 1922. This syndicate was founded in 1893 with the understanding that it was to exist for only five years, but it has since been renewed from time to time. The syndicate includes nearly all the coal companies in one of the principal producing territories of Germany.

A statement of the German exports for 1915 shows a heavy decline as compared with 1914, the respective figures being 6,464,197 tons in 1915 and 13,296,366 tons in 1914. The reduction was due to restrictions placed on the export trade, the tonnage to Holland, for instance, being reduced from 4,783,151 tons in 1914 to 991,174 tons in 1915.

The report of the Prussian State Mines for the year ended Mar. 31, 1915, shows that the total output of coal was 18,433,478 tons as compared with 25,174,407 tons the preceding year. The number of collieries in operation was 23, the same as in the preceding year, but the number of miners employed declined from 96,595 to 76,312. The net profits for the year ended in 1915 amounted to about $3,700,000 as compared with $13,600,000 for the preceding year.

Great Britain

The estimated production of Great Britain for 1916 is 255,846,000 tons as compared with 253,179,000 tons in 1915 and 287,412,000 tons in 1913, the last normal year previous to the war. For the quarter of the year ending in September, the output showed an increase of 350,000 tons as compared with the previous quarter ending June, but the last quarter showed an even heavier decline, amounting to three quarters of a million tons, which was undoubtedly due to additional drafts on the miners for military service.

The most important development in the coal industry during 1916 was the announcement of the Government toward the close of the year of its intention to take entire control of the coal mines of the country. The Government's grip on the coal industry has been gradually tightening throughout the course of the war, first in the system of licensing exports then in the matter of limiting prices, and the extension of this scheme to French and Italian exports, and finally to the appointment of district supply committees under the control of the central committee, with full power to fix the distribution of coal.

The effects of the new ruling providing for complete Governmental control of the coal industry will belong to the history of 1917. It was brought about, however, largely by labor disturbances, particularly in the Welsh field, where the outlook became so threatening that Government control seemed to be the only solution of the difficulty.

Special efforts have been made in Great Britain to increase the output, in pursuance of which the recruiting of trained men for military service stopped for a time, and the miners have been urged to work as steadily and effectively as possible while conferences of various kinds have been held with a view to studying this problem. The only thing accomplished by these conferences has been to arrange for the Miners' Federation to designate committees at each mine to make a study of the absenteeism among the men, with power to fine the offenders.

The dominating feature in the trade has been the almost continuous shortage of coal. This was due largely to the enormous extra consumption by munitions and war factories, these receiving the first consideration in the fuel supply, only that remaining being available for other purposes.

The British export trade suffered a still heavier decline in 1916 and has decreased to a point where it is a matter of much concern. The estimated percentage of the total production exported in 1916 was only 21.1 per cent., which compares with the average of the past half century of slightly less than 25 per cent. In 1913, the last normal year previous to the war, the percentage of British coal exported amounted to 34.2 per cent., declining to 30.5 per cent. in 1914, to 23.3 per cent. in 1915 and, as noted, to 21.1 per cent. in 1916.

But while the export tonnages have been persistently declining, it is interesting to note that the value of these has increased. In 1913, the last normal year, the British exports were slightly over 98 million tons, valued roughly at 330 million dollars. In 1916 the exports were only 54 million tons, but these were valued at 335 million dollars. It will thus be seen that the trade balance to the credit of the coal industry is being successfully maintained.

This loss in export tonnage is due primarily, of course, to the limited output, resulting from the heavy draft of miners for military service and also to the increased consumption due to the large number of munition plants, and further, in a measure to the scarcity of shipping facilities. Considerable reduction has also been caused by Great Britain exerting economic pressure on certain countries as, for instance, Norway, which usually takes in the neighborhood of two million tons per annum, but which is now getting no British coal whatever.

Holland

Holland produces comparatively little coal, the total production for 1915 amounting to only 2,262,148 tons, though this shows a considerable increase as compared with preceding years, the production being 1,928,540 tons in 1914 and 1,873,079 tons in 1913. The largest production was obtained from the Wilhelmina Colliery, a state mine, which output 450,298 tons in 1915.

The apparent consumption has suffered a decline due to restrictions on imports from both Germany and England, on which Holland usually relied for most of its supplies. In 1913 the consumption amounted to 10½ million tons, in 1914 to 9½ million tons and in 1915 to slightly under 9 million tons. The imports for 1915 were 7 million tons as compared with 11¼ million tons in 1914 and 15¾ million tons in 1913. A great deal of this loss in imports is made up by a like decline in exports, a considerable tonnage of coal being shipped into Holland for reëxport. Thus the exports show a decline from 5½ million tons in 1913 to four million tons in 1914 and only a quarter of a million tons in 1915.

India

The coal production of India in 1915 amounted to 17,103,932 tons as compared with 16,464,263 tons in 1914. By far the largest proportion of this output originated in Bihar and Orissa district, which produced 10,718,155 tons in 1915 and 10,661,062 tons in 1914. The next most important district is the Bengal, with 4,975,460 tons in 1915 and 4,424,557 tons in 1914.

Imports of coal into India in 1915 showed a very heavy decline due principally to a falling off in shipments from the United Kingdom. Imports in 1915 were only 173,451 tons as compared with 400,363 tons in 1914. The imports from Great Britain for these two years were respectively 30,149 in 1915 and 156,863 tons in 1914. Exports of Indian coal, on the other hand, have shown a substantial increase, amounting to 751,801 tons in 1915 as compared with 577,944 tons the year before. During the latter part of 1916, the Indian Government issued a decree prohibiting the exportation of the better grade coals.

Italy

The imports of coal and coke into Italy for the first half of 1916 amounted to 3,734,556 metric tons as compared with 4,119,110 tons in the same period of 1915 and 5,404,470 tons in 1914. The imports from the United States for the full year 1916 amounted to 1,735,072 tons as compared with 2,931,581 tons in 1915. The imports showed an abrupt falling off beginning with September, the figure for August being 218,525 tons and for September 94,430 tons, while November showed only 33,399 tons, though December recorded an increase to 73,106.

Norway

The imports of coal and coke into Norway have shown a substantial increase, the total for 1915 being 3,100,000 metric tons as compared with 2,764,000 tons in 1914 and 2,482,000 tons in 1913. As a result of the further restrictions in shipments of coal to Norway during 1916 there was renewed activity in the production of peat. One new factory was built in 1915, and several old ones which had suspended operations were reopened, but most of these produced for local consumption only. The total quantity reaching the general market probably did not exceed 10,000 tons. The average price of peat during 1915 was $6.70 per ton f.o.b. the works.

The greater part of the imports of coal into Norway usually comes from Great Britain, but the interruption to this source of supply has stimulated investigations of other possible districts where coal might be obtained, as for instance, Spitzbergen, and a company was organized during 1916 with a capitalization of 3,000,000 crowns to develop a property there which was estimated to contain 400,000,000 tons of coal.

Japan

The coal production of Japan for 1915 amounted to 20,490,702 metric tons, showing a decrease of 8.1 per cent. over that for 1914. The decrease was due to the more limited demand in the Far East, as a result of the war.

Japanese exports have declined steadily since the beginning of the war, being 2,901,000 tons in 1915, 3,558,000 in 1914 and 3,840,000 in 1913, this latter figure being the largest ever reached. In this connection it is interesting to note that Great Britain bought 750,000 tons of Japanese coal for its fleet in the Pacific Ocean. Imports in 1915 amounted to 610,000 tons as compared with 950,000 tons in 1914 and 572,000 tons in 1913.

Peru

Peru outputs comparatively little coal, the production in 1913 amounting to only 273,945 tons as compared with 278,927 tons in 1912. Imports in 1914 also showed a decline amounting to only 139,382 tons as compared with 150,660 tons in 1913, though this was due largely to restrictions on coal shipments occasioned by the operation of warships in the vicinity of that country.

Russia

The coal output of the Urals during the first half of 1916 was the greatest in the history of the industry, amounting to 702,724 short tons as compared with 683,504 tons in 1915 and 548,915 tons in 1914. For the 12 months ending with July, 1916, the production of coal in the south of Russia almost reached the highest tonnage made preceding the war, but the shipments were very much smaller, with the result that the stocks at the mines and distributing centers showed a very heavy increase, amounting to a total of 2,298,000 tons in July, 1916, as compared with 861,000 tons in the same month of 1915.

Imports of coal into Russia have shown a most extraordinary decline since the beginning of the war. The imports amounted to 3,194,502 tons in 1914, to 47,652 tons in 1915 and to only 4050 tons in 1916. Coke imports also showed a heavy falling off, being 442,945 tons in 1914, 948 tons in 1915 and 16 tons in 1916.

South Africa

The coal production of South Africa made a substantial increase in 1916, amounting to 10,007,473 tons as compared with 8,281,324 tons in 1915. The output of the Transvaal amounted to 6,136,913 tons in 1916 as compared with 5,502,805 tons in 1915. The output of Natal amounted to 3,066,232 tons last year as compared with 2,304,116 tons in 1915. It is estimated that about a million and a half tons of coal was used for bunkering

purposes and export business, half a million tons being consumed by the railroads, the balance going into miscellaneous consumption.

In the Province of Transvaal, which produces about half of the total output, the Transvaal Coal Owners Association handled during the fiscal year ending Aug. 31, 1916, 5,462,000 tons of coal as compared with 5,047,385 tons during the previous fiscal period. The increase in bunker and export trade amounted to 179,565 tons. It is probable that of the important coal producers of the world South Africa has the lowest mining cost of any, and it is worthy of note that since the inception of the war the fuel prices have shown little or no increase, contrary to the experience of the large producing countries.

The railways of South Africa consume about 22 per cent. of the total output of the union.

Spain

The fuel supply question in Spain has grown rapidly more acute each year since the beginning of the war, and the most energetic efforts have been made to increase the domestic production. The output of coal in 1914 amounted to 4,424,439 tons, which was increased to 4,834,353 tons in 1915 and to 5,406,899 tons in 1916. Of the 1916 production 4,687,565 tons was bituminous, 279,521 tons anthracite and 439,813 tons lignite.

Importations of coal in 1916 amounted to slightly over two million tons, making the available supply about 7½ million tons, whereas the requirements amount to about eight million tons. As a result of this shortage there have been decrees issued at different times fixing the price of coal, one of these toward the close of the year putting the maximum figure at a number of different points at $4.86 to $6.66 per ton for coal, $9.18 for foundry coke, and $7.75 for anthracite. The Spanish imports for the six months ending June, 1916, amounted to 1,051,775 tons as compared with 971,706 tons in the corresponding period of 1915. Coke imports declined during the same time from 117,789 tons in 1915 to 90,935 tons in 1916. So acute did the shortage become that at different times during the year the gas supply in some cities, as for instance Madrid, was cut off.

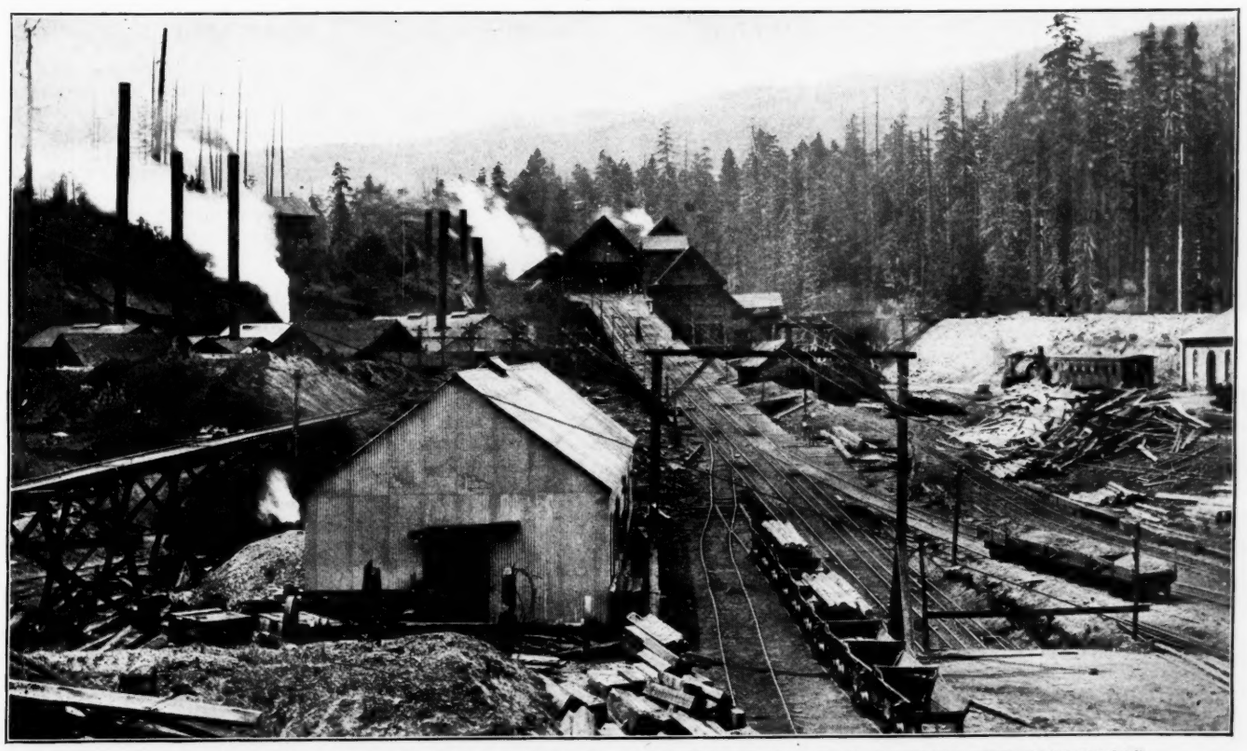
Sweden

Fuel imports from Germany into this country for the year ending July 1, 1916, amounted to 4,404,263 tons, of which 2,204,182 tons was coal, 828,563 tons briquets and 1,312,870 tons coke. Swedish imports from Great Britain for the first half of the year amounted to 3,398,549 tons as compared with 2,242,905 tons for the same period in 1915 and 2,134,508 tons in 1914.

The annual coal consumption in Sweden amounts to approximately 4,900,000 tons, of which less than 10 per cent. is produced in the country.

Switzerland

An arrangement was effected between Switzerland and Germany in September whereby the latter country agreed to provide the former with 253,000 tons of coal a month as follows: 28,000 tons of coal and briquets and 22,000 tons of coke for the federal railways, 51,000 tons of coal for producer gas purposes and 75,000 tons for industrial use. It is understood, however, that owing to poor transportation conditions in Germany the deliveries fell substantially behind these figures, and the situation, as regards the fuel supply in Switzerland, became so acute on several occasions that a reduction in the country's train service of 20 to 25 per cent. became necessary at times. Germany has always been the chief source of fuel supply for Switzerland.



THE NO. 4 MINE OF THE CANADIAN COLLIERIES CO., CUMBERLAND, B. C., BEFORE THE PLANT WAS ELECTRIFIED

The Herrin Mine Explosion

SPECIAL CORRESPONDENCE

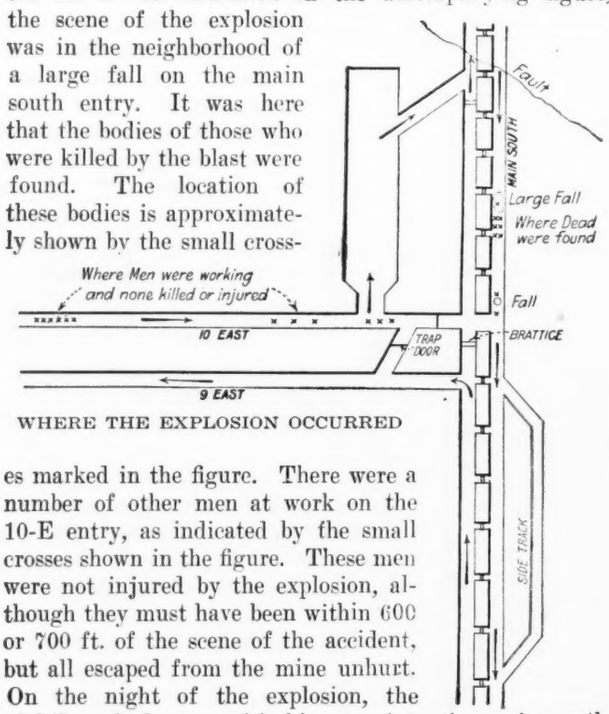
SYNOPSIS—Men all killed who could have told how the explosion happened. Surmise as to its cause, assumes gas was ignited on big fall in abandoned entry by workers engaged in recovering rails. Two concussive waves felt by survivors. Work of rescuers.

A fatal explosion in which nine men were killed and two seriously injured occurred in mine No. 2 operated by the W. P. Rend Coal and Coke Co., at Herrin, Ill., Saturday, June 2, 1917. As is usually the case, the men who could give any information as to the cause of the explosion were killed, and the incidents that led to the occurrence will probably never be fully known.

The surmise of the men who entered the mine a few minutes after the accident occurred is that a body of gas was ignited by the men working in the mine at the time. On the other hand, some of the mine officials are of the opinion that powder or dynamite was exploded by accident. However, it is not known that the men had carried any dynamite or other explosives with them into the mine, and their work did not require any blasting.

POSSIBLE CAUSES OF EXPLOSION

The explosion occurred about 7:30 p.m., a short time after the men employed on the night shift had entered the mine. As indicated in the accompanying figure, the scene of the explosion was in the neighborhood of a large fall on the main south entry. It was here that the bodies of those who were killed by the blast were found. The location of these bodies is approximately shown by the small crosses marked in the figure. There were a number of other men at work on the 10-E entry, as indicated by the small crosses shown in the figure. These men were not injured by the explosion, although they must have been within 600 or 700 ft. of the scene of the accident, but all escaped from the mine unhurt. On the night of the explosion, the nightboss had gone with his men into the main south entry, for the purpose of taking up the rails in that entry, which had been stopped and was to be abandoned. The work of dragging the rails over the large fall indicated in the figure was a difficult task, and it is thought that a body of gas had accumulated above the fall and was ignited by the lamp of one of the men, perhaps carelessly held too high in the cavity of the roof; or the gas may have been disturbed and driven from its lodging place before being ignited.



WHERE THE EXPLOSION OCCURRED

In any case, it may be said that it would be a serious mistake to allow men to enter and work in such a place before it was thoroughly examined; and it is hardly to be supposed that the nightboss was guilty of such negligence. It is possible that a fresh fall of roof may have released a considerable quantity of gas at some point inby on this heading.

EFFECT OF EXPLOSION REPORTED BY SURVIVORS

One of the daybosses, the same shift, had taken another gang of men into the 10-E, where they were working on a new branch which it was desired to complete for use the next day. As stated, the main south entry was stopped; it had not been working for several months previous to the explosion. Two explosive waves or air concussions were felt by the men in the mine, the second blast being, seemingly, more severe than the first. Little damage was done to the mine, only a few stoppings being blown out on the main entries, which would require but a short time to replace.

One of the men killed was struck by a timber near the mouth of the 10-E entry, and two others were injured at the same place. The assistant mine manager (assistant foreman), Allen Bean, carried one of the injured men out of the mine, and with the help of others the second man injured was likewise carried to safety. Several attempts were made to reach the men on the main south, but the afterdamp in that entry proved too strong and these efforts were unsuccessful.

The mine manager (foreman), John Wagner, was called and he reached the mine at the same time that the mine-rescue team arrived from Herrin. A rescue party was at once formed and they entered the mine. The first man brought to the surface was the dead nightboss, after which the other bodies were brought out.

WORK OF RESCUE TEAM AND MINE OFFICIALS

Much praise is due both the mine officials and the rescue team for the work they performed. One of the injured men taken from the mine was found to be overcome with afterdamp and considerably burned. He revived, however, after 30 or 40 min. use of the pulmotor and was taken to the hospital where, it is stated, he is recovering from the effects of the gas. After the removal of the bodies, the work of repairing the stoppings and restoring the ventilation in the mine was commenced.

It is to be hoped that if there was any negligence, in respect to examining the mine for gas, it will be shown in the investigation of this accident and the blame placed where it belongs. Even assuming that a careful examination of the mine had been made before the men entered for work, it would seem only a safe precaution to see that those working in the main south, which was blocked by falls, should have been compelled to use safety lamps, inasmuch as a fresh fall of roof was liable to occur at any time and expose them to danger.

Rules of Tidewater Coal Exchange

At a meeting of the Tidewater Coal Exchange, held at Washington, D. C., on June 11, 1917, the following rules, to go into effect on July 1, were promulgated:

1. All bituminous coal for trans-shipment at tidewater ports shall be graded as to kinds, and classified as to designated consigning pools under the direction of the executive committee elected at the meeting of bituminous coal shippers held in Philadelphia on June 1, 1917. The grades and classifications conform to Exhibit B, which shows the pool numbers authorized by the executive committee.

2. Waybills (revenue and memorandum), shall give the Tidewater Coal Exchange as the consignee; and shall in addition show the proper pool number as per Exhibit B "for the account of ———." Example: "Tidewater Coal Exchange, Pool No. 30, for the account of the Westmoreland Coal Company."

3. Each member of the exchange shall provide that each mine operator shipping bituminous coal for his account to the exchange shall prepare and forward by United States mail to the exchange a daily report on Form 1, showing the initials and number of all cars shipped on its account, with necessary details.

4. Each carrier will telegraph the bureau at the close of each day the total number of cars and tons of coal billed to each designated consigning pool number for the account of each member of the exchange.

5. Carriers will send to the exchange copies of scale sheets or billing and will report corrections in billing involving weights and diversions of shipments from or to the exchange.

6. Carriers shall report to the exchange daily on Form —— the number of cars of each number of coal at ports and en route; and the approximate time of arrival in 24-hour periods, of the coal which is en route.

7. The exchange shall issue daily for each port, and by individual roads, a bulletin on Form ——, showing the number of tons of coal reported shipped to date; unloaded into vessels to date, and the standing of each member in each designated consigning pool. This bulletin shall be accompanied by a vessel situation report on Form ——. The exchange shall also report to each member on Form —— the tonnage added to or deducted from his account.

8. Members shall report to the exchange daily at a designated hour the names of the vessels which they have chartered for loading for their accounts with the tonnage and pool number of the coal taken and the probable arriving time at the coal pier. If the vessel is loaded, the commodity should be given.

9. The assignment of coal to members shall be authorized by the exchange and no assignment shall be made in excess of the tonnage which such member or members have in the designated consigning pool.

No member shall be entitled to any coal from a designated consigning pool when the accounts indicate that the member has overdrawn from that pool, unless due to some extraordinary conditions the commissioner may deem an exception advisable.

This shall not prevent a member from borrowing coal in the pool from any other member having a credit, but such transactions must be between the individual members and authorized by them to the commissioner in writing.

10. When differences between the tonnage of coal shipped by a member and the tonnage of coal dumped into vessels for his account exist and the differences cannot be adjusted either by additional shipments or exchange of coal, the executive committee shall name a price to the commissioner of the exchange for the tonnage involved, and the commissioner shall authorize such debits or credits as may be necessary to properly adjust the differences.

11. In some instances coal orginating in different fields will be shipped to tidewater ports under one pool number but under different transportation rates. Adjustments between members of the exchange handling the cargo or bunker coal necessitated by such differences shall be made under the direction of the commissioner.

12. The account of a member in one designated consigning pool shall not have any bearing on his account in another pool at the same port or other ports. Members, however, shall be permitted to offset overdrafts of one pool with shipments made to the same pool at another port, subject to the approval of the commissioner.

13. No one shall be permitted to ship coal to any designated consigning pool until he has given satisfactory evidence to the commissioner that he had made proper arrangements for vessels.

Failure of a member to provide vessels in which to transport coal from any port shall constitute the basis for the issuance of embargoes prohibiting the forwarding of shipments of coal from mines for his account.

14. The exchange shall sign average demurrage agreements at all ports and if demurrage accrues it shall be charged to members under the instructions of the executive committee on the basis of tonnage loaded into vessels on their account.

15. In the event of controversies with reference to the operation of the exchange which cannot be adjusted by the commissioner, they will be submitted to the executive committee and the proper railroad committee in joint session and their decision shall be final.

16. (Rule covering settlement of freight charges to be prepared by railroad committee.)

17. Each carrier must send to the commissioner as soon as practicable after the close of each month a statement showing the gross freight revenue derived from the transportation of tidewater cargo and bunker coal consigned to each tidewater port, to form the basis of apportionment of the monthly expenses of the exchange.

18. (Statistical rule should be framed by railroad committee.)

19. Tidewater coal shippers and consignees must execute agreements of the forms referred to in regulation 16 and file one copy of each with the commissioner and one copy of each with the accounting officer of the interested carrier, before they make shipment of tidewater coal.

20. The executive committee and commissioners shall at all times protect the quality of coal shipped into the pool through a system of inspection and analysis if necessary in their opinion, and may at any time suspend shipments by any shipper when in their judgment the quality or preparation is below the proper standard.

21. The coal for trans-shipment on hand at tidewater ports or en route to such ports upon the effective date of the exchange shall be disposed of as follows:

a. Each carrier shall make an inventory of the tidewater coal at hand at each port as of 7 a.m. of the effective date, and under the direction of a representative of the exchange shall assign each shipment to the proper designated consigning pool.

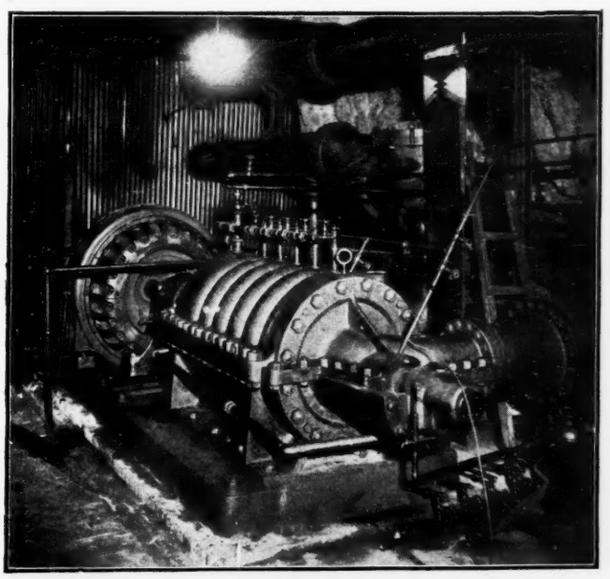
b. Coal shipments which arrive at tidewater ports subsequent to 7 a.m. of the effective date of the exchange which were billed prior to that date shall be assigned to the proper pools in the same manner as provided in paragraph (a) of this rule.

c. Agents at stations at which tidewater coal is billed shall be instructed to bill in accordance with rules of the exchange as of the effective date of the exchange and on that date begin daily reports on exchange Form ——.

22. Joint meetings of the executive committee of the Tidewater Coal Shippers' Committee (and the railroad committee) shall be held monthly, special meetings to be held subject to the call of the commissioner.

23. The effective date of the Tidewater Coal Exchange shall be July 1, 1917.

The rules adopted will tend to minimize the confusion and delay often experienced at trans-shipment points.



AN ELECTRICALLY DRIVEN CENTRIFUGAL PUMP USED FOR UNWATERING AN ANTHRACITE MINE

This 10-in. 6-stage machine is provided with a bronze case and discharges 3000 gal. per minute against a 298-ft. head

War Sidelights

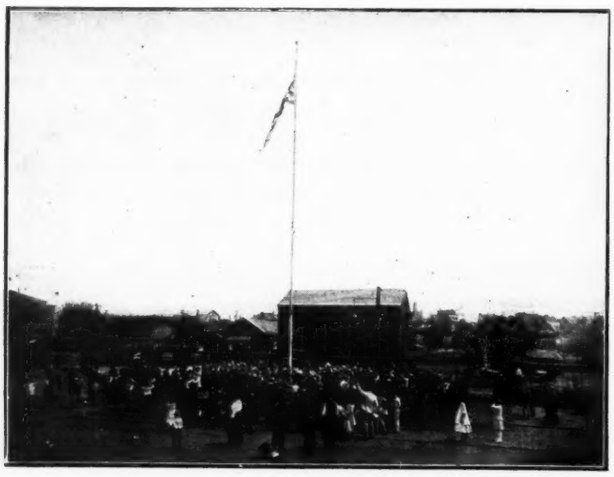
Under this heading in Coal Age each week we hope to publish items relating to war measures as they affect the coal-mining industry. We earnestly invite all our readers to send us interesting notes covering happenings which bear on the war, either in a military or an industrial way.—Editor.

Twenty-one Italian miners from the Broad Top Bituminous coal district of Pennsylvania were admitted to citizenship on June 4.

The Berwind-White Coal Mining Co., Windber, Penn., is purchasing Liberty Loan bonds for its employees at its local properties and adopting a plan for the miners to secure the bonds on a time-payment basis.

Miners employed by the Pennsylvania Coal and Coke Co., Cresson, Penn., have subscribed $125,000 for the Liberty bonds. It is expected that this amount will be increased by at least $25,000 with later subscriptions.

Employees of the Truesdale colliery of the Delaware Lackawanna & Western Coal Co. held a flag-raising



FLAG RAISING AT TRUESDALE COLLIERY

Sunday, June 10, the flag being raised by two veterans of the Civil War, T. H. Carey and William Leisenring.

Charles E. Lenhart, of the Producers' Coke Co., Connellsville, Penn., has been selected by President Wilson as a member of the Committee on Coal Production of the Council of National Defense. The selection of Mr. Lenhart meets with the hearty approval of coke men.

The Yorkshire Miners' Association has lost 2256 members in the war. The association has paid a death benefit of £6 for each member killed, and, in addition, the workmen employed at the colliery at which the deceased formerly worked contribute a levy of 6d. each, which at the larger collieries amounts to a further £30 to £35. The workmen also handed over to the association the bonus of £17,500 paid for working on the holidays of 1916, to be utilized for war charities. The Yorkshire miners have also provided for the Red Cross a convoy of 50 motor ambulances, at a cost of £35,000, and are maintaining them at a cost of £400 per week.—*Colliery Guardian.*

The Delaware & Hudson Co., Scranton, Penn. announces that all positions will be held for officers and employees who are members of the National Guard, Officers' Reserve Corps, Engineers' Reserve Corps or who volunteer or are drafted for service. Leaves of absence and pay of D. & H. men serving in the National Guard are extended until July 15. A resolution of the Board of Managers of the company states that men who enter the military service will be granted indefinite leave of absence without pay, but with the assurance that special effort will be made to provide employment for them by the company as rapidly as possible upon their honorable discharge.

The United Mine Workers of Illinois will purchase $100,000 worth of Liberty Loan bonds—twice the amount proposed to be bought by the national organization. President Frank Farrington, of the Illinois organization, in announcing the action of the board, said that the Illinois organization could better afford to make the purchase than the national organization because it has $1,000,000 more in its treasury. We want to show the nation," he said, "that the Illinois organization is patriotic. The mine workers of Illinois are behind the President to a man. We believe that we can do no more patriotic work than to give the Government the support of our funds." All Illinois miners enlisting will be exempted from the payment of dues and fees and will be retained in good standing as long as they are in the service.

The Lehigh Valley Coal Co., Wilkes-Barre, Penn., has coupled up the campaign for the Liberty Loan of 1917 and the effort to increase the production of anthracite through the coöperation of the miners. "President Wilson has urged miners to work steadily that the fuel supply of the country may not fail," said President Loomis in addressing employees. "Complying with his wishes not only will help the nation, but it means increased income for you to invest in the Liberty Loan."

Supplementing this Mr. Loomis said: "It is not only the increased income of the miners as a result of their working harder, foregoing holidays, etc., which should enable them to be of great aid to the nation just now. The war allowances they have recently been granted over and above their four-year wage agreements give them additional income which they might profitably invest in Government bonds at this time."

Operators Resent Navy Department's Fixing of Coal Prices

While it is denied at the offices of the Committee on Coal Production that any agreement has been reached with the navy as to the price to be paid for its coal, it is stated in other quarters that coal will be furnished the navy tentatively at $2.33½ per ton. The Committee on Coal Production is understood to have secured promises from operators to furnish the coal needed by the navy at $2.95. This price was laid before the Secretary of the Navy by Francis S. Peabody, the chairman of the committee. The Secretary of the Navy is said to have taken the stand that coal be furnished at $1.72.

After many days of executive conferences, it is said that an agreement was reached to split the difference between the price asked and the amount Secretary Daniels is willing to give. Coal will be delivered at that price ($2.33½) pending an investigation by the Federal Trade Commission as to the cost of production. After this has been ascertained, the commission is to give its opinion as to what would be a proper additional amount to add to the cost of production in order to arrange the price on a cost-plus basis.

Operators deplore the fact that the Navy Department should be so obdurate in the face of what they regard as overwhelming evidence of the cost of production, which they claim is not far below $2.95. There are no less than six big jobbers in the country, it is said, who would be willing to close contracts tomorrow for an equal amount of coal at that price and pay a premium of $1,000,000 for the privilege. Resentment at what they term the unreasonable attitude of the Navy Department is particularly strong among operators in the smokeless region, where the criminal prosecution of operators is being undertaken on what is characterized by mining men from that section as the "most unfair prosecution in the history of federal jurisprudence."

Profit on Anthracite Limited to Twenty Cents

Jobbers in anthracite coal have received the following letter from the Federal Trade Commission:

The Federal Trade Commission wishes to define to the anthracite jobbers its attitude on certain points in connection with the special weekly reports required from the trade.

A national crisis now exists in which high prices for necessaries of life and of industry will hamper the vigorous prosecution of the war. The great majority of anthracite jobbers, recognizing this situation, are voluntarily limiting their profits not to what they can get, but to a reasonable return for the service they render, and are making their purchases only from the mines or selling agents of the mines and making their sales only to retailers or consumers.

The commission heartily commends this action. It believes that the jobber cannot justify his economic existence at a time like this on any other basis. It believes that the jobber's gross margin need not exceed 20c. a ton on any sale (25 to 30c. in the case of Western jobbers) and that the bulk of the business will be carried on at margins less than these.

In case any jobber charges prices for anthracite which result in gross margins greater than these, or is a party to unnecessary sales between jobbers, the commission will be constrained, in pursuance of its public duty under the law, to immediately report publicly to the Senate the activities of such jobber by name.

Upon receipt of this letter the trade will have had full explanation of the commission's opinion on these points and it is hoped that further action will be unnecessary.

It should be noted that a statement of all sizes of anthracite sold is required in the weekly report.

To Lower Price of Anthracite

In its efforts to insure that the consumer gets anthracite coal at moderate prices, the Federal Trade Commission is requiring operators to report weekly all orders accepted, together with the prices for same.

The producers of a great proportion of the tonnage are selling their output at moderate prices, so that the high premiums charged by a number of operators during recent weeks are beginning to disappear from the market.

As a basis for publicity, within the powers of the commission, costs of production are being obtained from any operators who continue to maintain unjustifiably high prices.

The commission is also getting monthly production statistics by sizes from all the anthracite mining companies; and anthracite jobbers are required to furnish the commission a weekly report, giving complete purchase and sales-data, and gross profits on each transaction. With this information, the commission can trace all jobbed anthracite from the mines to the retail yard.

Agents are in the field keeping in close touch with the prices charged by retailers in various parts of the country, so that distribution and prices are being traced all the way from the mine to the consumer.

Now the Camp's Gone Dry*

By Berton Braley

Here and there we hear complaining
Now the camp's gone dry,
For the lawyers' work is waning
Now the camp's gone dry;
There's less work for mine inspectors
And for cops and crime detectors,
Jobs are few for bill collectors
Now the camp's gone dry.

Trade in guns and knives is failing
Now the camp's gone dry,
And the pawnshop men are wailing
Now the camp's gone dry;
Though the place of late has grown some,
Business of that sort has flown some
Other camp. Loan sharks are lonesome
Now the camp's gone dry.

Men don't show up gray and dizzy
Now the camp's gone dry,
Ambulances aren't so busy
Now the camp's gone dry;
Hands are steady, eyes are truer,
Accidents in mines are fewer,
But—the undertaker's bluer
Since the camp's gone dry.

Grafters view the fact with loathing
That the camp's gone dry,
But there's bully trade in clothing
Now the camp's gone dry;
All the red-light gang may blow, sir,
But the baker and the grocer,
Are they kicking any? No, sir!
Now the camp's gone dry.

Wives and children aren't disgusted
Now the camp's gone dry,
Fewer hearts and heads are busted
Now the camp's gone dry;
As for mining—that goes faster,
With less trouble and disaster,
We've dethroned an evil master
Now the camp's gone dry.

*From the "Engineering and Mining Journal."

The Labor Situation

General Labor Review

John P. White recently called a meeting inviting the three district presidents of the anthracite region, two district presidents of the bituminous regions and the secretary-treasurer. It has been surmised that this meeting, held at Indianapolis, was for the purpose of protesting against the failure to appoint any union man on the Committee on Coal Production, or fuel board, which is a subsidiary of the Council of National Defense. This hardly seems likely for two reasons, first because all the presidents are not invited to Mr. White's conference and second because Mr. White has long ago been invited to a place on the fuel board. The council called by Mr. White doubtless has reference to Pennsylvania matters.

The Anthracite Conciliation Board still has, of course, some grievances to settle, and it held a session in Wilkes-Barre last week. The miners of the Delaware & Hudson Co. in the Lackawanna district are demanding allowances for the top and middle rock. Another grievance considered at the same time relates to the wages paid to steam-shovel engineers and foremen of the Dodson Coal Co., which operates in the Lehigh region.

Good Sports Always Keep Rules of the Game

This kind of trouble is all according to the rules of the game, which the men are for the most part keeping like good sports. But that cannot be said about the Lehigh Coal and Navigation Co.'s men at No. 14 colliery, Nesquehoning. These men struck on June 7, owing to a dispute over consideration wages. The men say they are not getting the rate for this work due them under a recent agreement. That is a matter for the Conciliation Board. Why not let that board or its umpire decide it?

The Draper colliery, of the Philadelphia & Reading Coal and Iron Co., which has been idle for some time undergoing repairs, resumed full operation on June 8. It employs 1000 men, and if the men have meantime all been idle, which may well be questioned, its operation will add 2000 tons of coal to the market daily.

Union Gains Further Recognition in Somerset County

In Somerset County, Pennsylvania, the Brothers Valley Coal Co. has abandoned its fight against the United Mine Workers of America and entered into a contract granting full recognition of the union, the agreement being made June 5. The strike of the Maple Ridge Coal Co.'s men at Holsopple still continues, but the working force of nonunion men is constantly increasing.

In general there is less trouble in central or western Pennsylvania than has been the case for many months, and the Ohio men are working wherever and whenever opportunity is afforded them. In West Virginia there is little trouble outside of Preston County, in the northeastern corner of the state, where, however, all but two or three mines are on strike. The mines affected are located at Tunnelton, Austen, Newburg, Independence and other towns along the Baltimore & Ohio Railway.

Wagon Mines Make Trouble in West Virginia

The dissatisfaction here arises as in central Pennsylvania from the closeness of the wagon mines. The wagon operators are in the mining business only "for the duration of the war," and they do not care what wages they pay. Consequently, they demoralize the industry.

The miners are striking for 61c. a ton for mining room coal and 71c. for mining heading coal. They also want recognition of the union. The companies affected are the Austen Coal and Coke Co., the Borgman Coal Co., the Gorman Coal and Coke Co., the Hiorra Coke Co., the Hite Coal Co., the Gordon B. Late Coal Co., the Merchants Coal Co., the Preston Coal Co. and the Virginia-Maryland Coal Corporation. Delegates from the New River and Winding Gulf fields met on May 31 at Charleston, W. Va., and ratified the agreement just written by the representatives of the mine operators and the mine workers.

The Western Kentucky Coal Co., operating in Union and Webster Counties, has taken action under an injunction issued in 1907. The court ruling was made against A. J. Doss and others, men who are not involved in this action, but the coal company holds that the instrument covers the actions of the four men arrested and declares that the men were provided with printed copies of this 10-year-old restraining order and had been notified that they must accord with its provisions.

There are four men charged with contempt. The injunction to which reference has been made was obtained at the court in Louisville. It prohibited union miners from entering the property and attacking the company's employees or threatening to attack them. All of these provisions are said to have been violated by the defendants.

"Fuel Board" Gets Oklahoma and Kansas To Work

The Committee on Production of the Council of National Defense has managed to get the Kansas and Oklahoma mines into operation. Alexander Howat, the president of the district, had refused point blank to confer with the operators relative to the use of mechanical shotfirers for the shooting of coal at the Sheridan and Mayer mines.

Chairman Harry N. Taylor appealed to his patriotism in vain and then finally wired Secretary Wilson, of the Federal Department of Labor, asking that the miners be ordered back to work. Mr. Wilson replied that he would meet the operators on June 4 at his office, but that he had no authority to instruct the men as to their course of action. However, he telegraphed President Howat as follows:

Have just been advised that committee of Kansas operators has been appointed to come to Washington to meet Mr. Peabody and myself next Monday. The Government is much interested in maintaining an uninterrupted supply of fuel for manufacturing and transportation purposes. The safety of republican institutions is wrapped up in the rapidity with which the United States can mobilize and equip its forces. I feel that in this emergency no stoppage of work should take place in a basic industry like coal mining without giving the Government an opportunity to use its good offices to bring about a satisfactory adjustment. May I not therefore urge you to direct a resumption of work in the mines now idle and to come with a committee to Washington to meet the operators in my office with a view to securing an adjustment of the difficulties on a basis that will be satisfactory to all parties concerned? If you had no machinery for the adjustment of grievances the situation might be different. As it is with the machinery you have established by joint contract for the adjustment of grievances the miners have nothing to lose and the people generally have a great deal to gain by a resumption of the operations in the mines now idle. For old time's sake and for the future welfare of the miners let me again urge you to direct an immediate resumption of work and have a committee come to Washington Monday, June 4, at 2 p.m.

Violates Agreement and Refuses To Confer

The telegram of the secretary was not wholly without result. Though Mr. Howat refused to enter into a conference, he did consent to talk over the matter informally. The Coal Production Committee of the Council of National Defense had commissioned Ira Clemens, chairman for Kansas, to handle this matter. He succeeded in arranging an informal meeting at Pittsburg, Kan., between Mr. Howat, E. M. Roberts, superintendent of the Sheridan Coal Co., and John Mayer, president of the Mayer Coal Co. At this meeting the operators explained to Mr. Howat that the mechanical shotfirers are safety devices and that their removal would jeopardize the lives of the men; they pointed out that the company was seeking to protect the men, and that they could not take on themselves the responsibility for eliminating this safeguard. They said that if President Howat was willing to shoulder the responsibility for this loss of life the operators' hands would be clean. Howat was willing to take the responsibility, and the operators then said "Go ahead." The mines were reopened.

A Study in the Temperament of the Mine Worker

The only other mines in the district which were idle through labor troubles—those at Henryetta, Okla., were also opened June 1. Here the miners who had struck for one grievance remained out for another, and then refused to work on general principles. The miners had got into trouble with their own union officials, the higher organization in Oklahoma refusing to back them up. In this controversy as in many private quarrels the origin of the fuss was soon almost forgotten, but the animosity and ill results remained. The Indianapolis office sent Italian speakers to the district, to explain to the men the war situation. These men appealed to their patriotism, and tried to secure their return to work. John Wilkinson, president of District 21, who is a member of the coal production committee for Oklahoma, in connection with the Council of National Defense, exerted his best efforts in conjunction with the national representatives; and the men finally yielded to his wishes. There was no sort of agreement or compromise. It was entirely on patriotic grounds that the appeal was made, and to that appeal the mine workers were responsive.

Editorials

Is There Another John P. White?

The bitterest element of friendship is the certainty that some time or other it will fail, and a character that we thought superior to common frailties will show a trace of the earthy elements out of which we are all molded.

We have felt that John P. White was all patriotism and fairness, that he idealized those qualities which we admire in the workingman—fairness, sobriety of utterance and self-respect.

The latest of his dicta, however, come as a shock to such confidence, and for the moment we have wondered whether we were right in appreciating him so highly. But when we recall how many of our idols have proved to have feet of clay, we are not surprised that Mr. White has shown this characteristic also.

His statement that the Committee on Coal Production "sets aside a complete national agreement between mine owners and mine workers just recently arrived at in New York" was so misleading in its wording that it was generally and with good reason understood to refer to the wage question. In fact, there really was no agreement made other than that, though a committee of mine workers and operators was formed at the same time to consider the problems relating to the war.

Mr. White's remarks, if not calculated to mislead, were nevertheless exceedingly misleading. The public would be quite likely to judge from his statement that the fuel board was endeavoring to invalidate the wage instrument that had recently been signed. This was not and is not true, and Mr. White only appears to deny it.

Furthermore, Mr. White's statement leads everyone to believe that he had not been invited at the time of its framing to participate in the work of the fuel board. He was so invited on May 15. Now, Mr. White does not deny that the invitation was made. What he actually said in his published utterance was this:

> I call your attention to the fact that the remarkable statement issued by this Committee on Coal Production violates the very statement of a high principle which at one place it sets out—the principle that a first essential at this time is coöperation and mutual confidence between employers and employees. Not one representative of the workers who produce the coal was consulted in the preparation of the statement and of the policies it proposes.

This was true. John Mitchell, former president of the United Mine Workers, had been invited and at the last minute had refused to serve. The fuel board deliberated and prepared its statement for May 14, using the judgment of those who had been invited to participate and who had complied with the request.

On the day following the issuance of the statement, when it was known that Mr. Mitchell would not serve, Mr. White was invited to accept a place on the board. Nevertheless he abuses the board for not having permitted him a seat at its councils. When we realize how little was proposed in the statement of the fuel board, we do not think it deserved such abuse, and we do not think it prevented Mr. White from accepting membership.

The worst charge against it lay in a paragraph quoted last week. It reads:

> The operation of well-established mines should not be impeded, and we suggest and urge that the practice of moving miners from the mines of well-established producing companies or communities to other districts be discouraged, as this practice creates a state of unrest, interfering with the stability of the industry which is necessary for its highest efficiency.

Before we discuss this last suggestion, it is necessary to add that the member of the board most objected to in the statement issued by Mr. White was J. F. Welborn, who represents the Western mining interests.

Mr. Welborn and the practice of moving miners from place to place have been coupled up in an interesting way since the statement of the fuel board was made. They have been joined in a way Mr. White and the mine workers' union probably never anticipated.

There was a strike at a union mine in Oklahoma, and labor agents were sent out of Mr. Welborn's district to induce the mine workers who were union men to migrate and work at a nonunion mine. Mr. Welborn ascertained that his own company was not involved, but he immediately, and with success, called on this nonunion company to withdraw its labor agents and return the union men it had secured, so that the union mine might not be hampered in its operations.

There is no evidence that Mr. White or the union has anything to fear from the Committee on Coal Production and there is certainly no reason why he should not associate himself with it in its deliberations and in making recommendations for the conduct of the industry. So far his remarks have in no way disqualified him from participation, and it is certain that no action of the committee thus far taken justifies a feeling of distrust on the part of Mr. White.

Federal Commission's Activity Showing Results

The detailed statements with which all shippers are supplying themselves, as a result of the investigation of the Federal Trade Commission, are proving not only an education to them but are furnishing some surprises, especially to the big shippers. With business coming in such heavy volume and orders cancelled at the end of each month, it has heretofore been difficult to watch each individual dealer. Now, in the efforts being made by the shippers to distribute tonnage on the same basis as in former years, it is often found that some customers have been receiving more coal than they were entitled to, while others have been neglected. As the desire of the shippers is to treat all equitably, the information they now have is being used to great advantage.

This attempt to distribute tonnage on the same basis as in former years has also tended to prevent the companies from taking on new customers here and there, with the idea of securing the business on a larger scale when conditions once more become normal. It is about

hopeless now for any dealer to endeavor to align himself with a new shipper, even for a single car.

This week the Federal Trade Commission increased the maximum prices at which they suggest the shippers sell their coal. While there seems little disposition to charge these rates for the current month, one concern has announced the changes. They are $4.90 for egg, $5.15 for stove, $5.25 for chestnut and $4.45 for pea, all f.o.b. the mines. The firm in question has undoubtedly sold all its June coal at lower prices and probably announces the higher ones to safeguard itself from any additional business at the former rates.

There is a tendency among individual shippers to abandon the recently suggested plan of adhering closely to circular prices. For a short time the plan seemed to meet with some favor, but of late there have been wide fluctuations in the prices being quoted by one shipper to different customers. The tendency is far from being general, but it is certainly gathering momentum at this time. We know of one case where a prominent dealer made a cash purchase of egg at $4.35, stove $4.55, nut $4.65 and pea $3.25, and was promptly given the car numbers. Next day the shippers notified him that it was necessary to transfer the coal on account of an embargo. On the following day the same shipper quoted the same dealer, the embargo having been lifted, an increase of 20c. on the prepared coal and 70c. higher on pea. Another shipper, in sending out a circular dated June 4, giving its prices as egg $4.65, stove $4.80, nut $4.80 and pea $3.70, stated that these quotations were "being made temporarily."

Without specially announcing it, the Trade Commission has given the wholesale dealers the impression that it is only interested in protecting the domestic consumers and that it is not trying to regulate the prices of steam coals. The shippers continue to keep the commission informed of the prices at which their tonnage is being sold, but we know of at least one concern that is making no such return on its steam sizes. It is believed that the commission is watching the prices at which pea coal is being diverted from the family trade to the manufacturers, but that it is not at all likely to question the reasonable rate of $3.50. It is known that thousands of tons have been sold, and continue to be sold, at this price to manufacturers.

Anthracite Outlook in New England

Loading is slow at practically all the seaboard piers. Domestic sizes come down only in dribbling quantities, and the outlook for New England is anything but encouraging. Consignees in many instances are obliged to take sizes they do not want, like broken and barley, but they make little complaint as long as something is being shipped. The situation hits hardest those dealers whose usual sources of supply, the shippers, have disposed largely, if not altogether, of the barges through the use of which they were in position to name competitive prices. So much coal from these sources has been withdrawn, and the dealer has so little standing with the companies who still continue to ship, that he is obliged to buy speculative coal so he may keep in business.

This all works harshly upon a number of New England dealers, and it would seem as if this would be a suitable field for the Federal Trade Commission to investigate. If these barges have been withdrawn from their normal use through the high water freights that prevail, then here certainly is a case where the regulating authorities can do some effective work. If maximum rates from New York and Philadelphia and other loading ports could be put into effect, we would see most of the barges in question restored to the anthracite trade as soon as the present charters expire.

Doing Business for Less Than Cost

There are no known limits to the genius of socialism. We are not in the habit of crediting the socialists with half the glory of their transcendent idealism. They glory in the fact that they propose to do business at cost, but really they aim far higher—they would even do it at a loss.

In the State of Pennsylvania, the board managing the Workmen's Compensation State Insurance Fund has long made up its mind that it would try to secure from taxation the necessary amount to pay all administration charges in connection with that fund. It wanted the state to provide $250,000 to pay all such expenses until July 1, 1919—a modest offer, $50,000 less in fact than was granted by the legislature of 1915. Of the $300,000 then granted, however, only $203,132.51 has been expended.

The tendency of governmental authorities who control public utilities is to do their work at a loss to the public. Fortunately, the government does but little so far and so the loss is inconsiderable, only a few billions a year out of the 50 billions of the annual national income.

Probably, it is well for the government to take part in some things that are unprofitable and to give people some things which they must have, but for which they cannot be made to pay. But workmen's insurance is not one of these. The employer is obliged either to buy it or guarantee its equivalent. So the sale is made certain by the terms of the act wherever a sale is desirable. The only advantage secured by an appropriation is the larger sale of state insurance, which quite usually is not so safe as that afforded by the private companies that have combined to provide the insurer with a similar service.

It is interesting to note that the state officials have found it necessary to send out men to make speeches on behalf of the state insurance fund. The assurance that the state furnishes does not appear to "sell itself." Apparently, the public is more inclined to purchase private insurance, despite the fact that the insurance companies have been compelled to raise their charges from the state rate of $3.57 to the private rate of $3.85 per $100 of payroll as a guarantee of greater safety, and even though the state returned 15 per cent. of the money received from the policyholder.

The big annual Equipment Number of *Coal Age* will appear July 21. We want dozens of articles covering haulage, pumping, ventilating, mining and power equipment; in fact, any kind of machinery that is used in the production of coal. All articles are to be in our hands by July 9. Start yours today.

Department of Human Interest

Design of Buildings in Mining Towns*

By R. H. Hamill†

SYNOPSIS—Discusses the various kinds of underpinning and roofing, the construction of chimneys, flues and fireplaces. Urges that it is useless to provide any part of the building which will outlive the rest of the investment. Houses often cost as much as the rest of the plant and when continuously occupied paid even before the recent rise in prices little more than high-grade securities.

Where a mining operation is located near an established town of sufficient size to furnish housing supplies and recreation for employees and their families, the construction of dwellings, amusement or Y. M. C. A. buildings, clubhouses and store buildings does not devolve on the mine operator. But because of the sparseness of the population in most coal fields, at least at the time of development, the burden is quite usually thrown on the coal company, which may have to expend as much for this development as for the plant proper.

In order that the best results may be obtained, in the location and grouping of the buildings an accurate topographical survey should be made of all available building ground, such as is already usually made for structures directly connected with the plant. Careful consideration should also be given to what the needs of the operation will be when fully developed.

By an investigation of operating plants in the immediate or adjacent fields, a reasonably accurate estimate can be obtained of the average production per employee, all men engaged being considered. From like sources the proportion of married and single men that will make up the force can be estimated. In this manner the number of families to be housed, the number of dwellings needed and the size of the stores and other buildings by which the needs of the people will be satisfactorily solved can be roughly determined. As only a small percentage of the dwelling appropriation need be expended on houses for the superintendent, store and office forces and foremen, more latitude can here be allowed and plans varied to meet the individual ideas of those in charge; but it is considered best to standardize other dwellings as far as possible, thereby reducing the construction cost.

If .possible, 5 to 10 per cent. of the outlay should be expended in fencing, building sidewalks, tree planting and like subsidiary improvements. The type of dwelling that should be used depends to a great extent upon the amount of suitable building land in proportion to the estimated requirements. In laying out the town it is, of course, advisable to give each dwelling all the space possible in order that the tenant may have the advantages of a garden and private yard, which he undoubtedly appreciates. On the other hand, if the plant is not to be developed to full capacity immediately, space must be reserved to accommodate future construction.

Double Houses Breed Undesirable Conditions

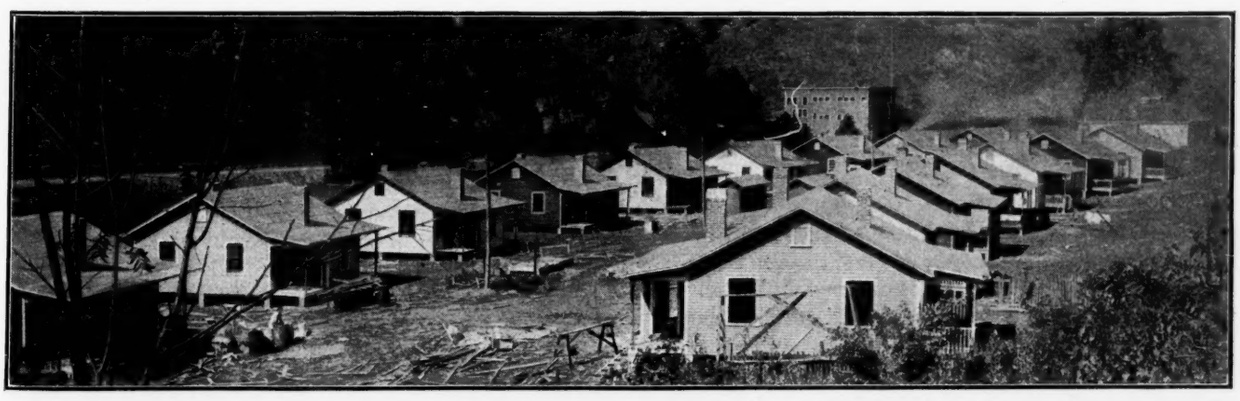
Often the amount of suitable ground is so limited and the contemplated capacity of the plant so large, that the operator is compelled to use locations which are undesirable and to place the buildings close together without space for garden plots. In some cases even double dwellings must be constructed though it is generally conceded that they are less desirable than single tenements.

By not crowding houses, as is only too customary in cities, and by throwing undivided responsibility upon the tenant for a space about his house, we find operating companies can manage to secure out-of-door conditions much better than those found in the congested sections of the towns and cities which are occupied by people of equivalent standards of living.

The larger percentage of the persons in a mine community are careless and indifferent about their sanitary surroundings, and only by continued effort and the carrying out of carefully formulated plans can conditions be gradually bettered. Some operators, desirous of better-

*Paper read before the West Virginia Coal Mining Institute.

†President and general manager, Diamond Construction Co., Huntington, W. Va.



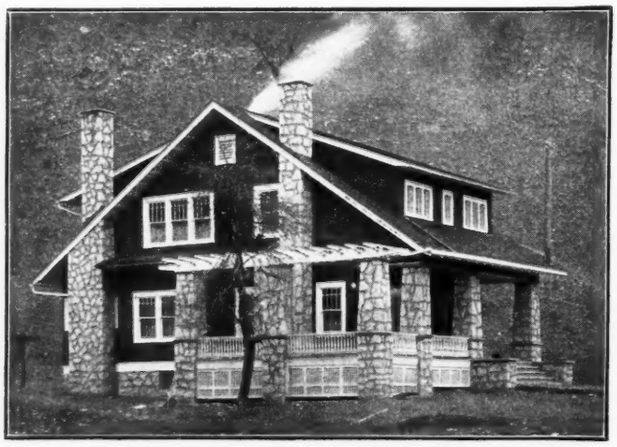
A MINE VILLAGE IN THE MAKING; THE HILLS ARE STEEP BUT THE LEVEL VALLEY IS AMPLE FOR BUILDING

ing conditions, have made radical improvements in these matters, particularly in regard to the evils of the outbuilding; but too often they have found that their tenants did not appreciate their efforts or give the necessary assistance to the plans conceived for their betterment. Until such people are educated to such a degree that dependence can be placed on their intelligent coöperation in village sanitation, most efforts of this kind will be fruitless.

The rectangular house, either as a one-story four-room single dwelling or as a two-story eight-room double dwelling is as a rule the most satisfactory to the occupant. It is also the most desirable from the owner's point of view, as a lower construction cost per room is possible with this type than with any other having equal floor space.

Since the revenue is based directly on the number of rooms, the rectangular house will therefore afford the best return on the investment. The three-room house as usually constructed with one room forming an ell, costs about 15 per cent. more per room than a four-room house, because two of the rooms have three outside walls and because the roof is irregular. If there is no three-room house available, the applicant will probably take a four-room dwelling, in which case he may board one or two other employees. If not, his family will get the advantage of more commodious quarters than they would have otherwise. In some localities a number of five- and even six-room houses are required.

If fortune has been favorable, so that the sites are reasonably level, and if the funds can be secured, dwellings should be placed on solid foundations of concrete, vitrified building blocks, stone or brick, the kind depending upon the cost, which is, of course, controlled by local conditions. If this is inadvisable, the next best foundation is afforded by concrete piers, which, so long as they do not average more than 3 ft. compare favorably in first cost even with wood posts.



BUNGALOW FOR A MINING SUPERINTENDENT

Footings of walls and of concrete piers should be placed low enough to be safely below the frost line. If this is done and adequate sill construction is provided, the centers of the piers for one-story houses may be safely spaced 9 to 12 ft. apart. Because of their greater cost and the large number of joints exposed to moisture and frost, piers of brick, stone and vitrified building block have not been found as satisfactory as first-class concrete piers. Where hillsides have to be used for building purposes and the height from the ground of the lower side of the building is such that concrete piers are inadvisable, the wood posts which were formerly in general use are an alternative. They should be set on a footing of concrete on a large well-bedded stone and should be protected as much as possible from decay.

Details in Preparing the Bills of Lumber

Covering the underpinning of a house with boards adds much to the warmth and appearance of the building. However, provision should always be made for ventilating the space so inclosed.

Framing should be of well-manufactured, sized and reasonably dry stock, preferably hemlock or pine. Subflooring, storm siding and sheathing should be absolutely dry and surfaced on one or two sides. Subflooring may be dispensed with if the dressed floor is carefully laid, practically the only result being a slightly colder floor. Storm siding is also unnecessary in this class of construction should tongue-and-groove drop, or "German," siding be used.

Bevel siding, resawn from $\frac{7}{8}$-in. stock, should not be used except in conjunction with storm siding. The application of bevel siding directly to the studding cannot be too severely condemned as it does not sufficiently strengthen the frame, and it is impossible to apply it in such a manner as to prevent a large amount of air passing into the wall space, chilling the inner walls of the plaster or passing through into the rooms.

Under most conditions, gypsum wood fiber or hard wall plaster has been found to be the most satisfactory when first cost, appearance, strength, the prevention of air leakage into the rooms and lasting qualities are considered. At one time it was thought that tongue-and-groove $\frac{1}{2}$-in. ceiling better withstood hard usage, but it is now generally conceded that plaster does not depreciate any more rapidly than ceiling and by its use a warmer and more sanitary building is secured.

Only hard brick should be used in chimney and flue construction as the over-size soft bricks found in the run of the kiln make large joints necessary and, furthermore, such brick are sure to be found in the exposed parts of the flue despite the most excellent of intentions. It will be readily conceded that in such locations they cannot withstand the effects of the weather. Should cost permit, chimneys should be laid with full joints and provided with fireclay linings. If these linings are not used, the chimneys should be completely plastered inside.

A chimney well laid with solid joints, struck on the inside and unplastered, is much better than a plastered chimney the joints of which are scant of mortar. It is not safe to depend too largely on the plaster, for if the chimney settles the plaster may crack and drop off. Chimneys resting on the ground should be set on a substantial footing extending below the frost line. Chimneys or flues exceeding a total height of 8 ft. and over 8 x 8 in. in horizontal dimension should always extend to the ground. Smaller flues may safely be set on a frame stand well framed into the floor system.

Where the climate is not too severe, so that heating by fireplaces will suffice, and where tenants do not usually own heating stoves, fireplaces should be provided in

most of the rooms. In this case hearths, which are usually constructed of concrete, should be built. They should extend not less than 24 in. into the room. As the fire is often carelessly handled this space is needed to prevent live coals coming in contact with the floor.

Electric Lighting Is no Longer a Luxury

If possible, dwellings should be wired for lights, and electric service should be furnished. The cost of wiring is small and the occupant appreciates, and is willing to pay for, the convenience. If the work is properly done, the fire hazard is diminished, and the tenant is apt to spend his evenings more profitably than when his dwelling is lighted by a cheap oil lamp, indifferently trimmed and cleaned.

Opinions are divided as to whether a company should standardize on one combination of colors for the exterior painting of its dwellings, or whether there should be several combinations so diversified as to give a varied appearance. Much can be said on either side of the question and both plans have their distinct advantages.

The higher grades of prepared paints are the best for use on mine houses. Their better spreading and covering qualities make them really cheaper in first cost than the lower-grade goods. Under average mine conditions lead and oil paint is not found to be desirable. It does not stand up until the time of repainting, which is, of course, not as frequent as on a higher grade of building. All the better paints carry a percentage of zinc which overcomes this difficulty to some extent. The interior woodwork, which is often left untouched, should be painted, or stained and varnished.

Doors and windows are probably subjected to the hardest usage of any part of the building and should be strong and fitted with substantial hardware. It appears from an inspection of many vacated miners' houses that closets serve largely as a catch-all for discarded clothing and for the sweepings from the room. Fires are therefore likely to originate in them. They are not used for the purpose for which they were intended and to which they are put in the higher class of residences.

There is a wide variety of roofing materials, each having its own peculiar advantages and disadvantages. Composition roll roofing, composition shingles, tin and galvanized iron, metal shingles, asbestos shingles, slate, and wood shingles, all being used more or less. The flat roofs of store or office buildings can be satisfactorily covered with felt, asphalt, gravel or slag roofings. Roofs of a steeper pitch, such as dwellings afford, furnish a problem, as the manufacturers of composition roofing find it hard to bond a sufficient quantity of asphaltic compound into the material to give it the desired life. However, when price is considered, there are many satisfactory composition roofs on the market.

One cause for dissatisfaction with such roofing material arises from the fact that unscrupulous manufacturers can use the most inferior materials in making such roofing and it is practically impossible to recognize the low quality until after the roof has failed in service. The only protection is to use the standard brands of manufacturers who have an established reputation at stake and cannot afford to lower the quality of their product in order to secure large immediate profits.

Composition shingles have been on the market for a comparatively short time, but undoubtedly those composed of the same materials as the high-grade roll roofings will prove satisfactory. There will, of course, be failures with the lower grades. The cost of composition shingles is approximately double that of roll roofing of equivalent grade.

Tin roofing has recently come into disrepute and is not used to any extent for mine dwellings. Doubtless, to save cost, lower grades of sheets and lighter coatings are being used now than in the past, when tin was considered one of the most satisfactory of roofing materials. Frequent paintings of the roofs at mine plants is undesirable, and so it is not well to use a roof for which such

CLUBHOUSE FOR EMPLOYEES AT A KENTUCKY MINE
Fitted up with shower baths, vapor heating and a stationary vacuum-cleaner system, with running water in all rooms

care is needed. Experience shows that for one reason or another aside from the cost, roofs are seldom painted at the proper time. Hence, excessive depreciation results. The fact that tin must be painted regularly is therefore a further reason against its use.

Galvanized iron is probably used more generally than tin, but the light gages used and the conditions prevalent in mining communities cause it to deteriorate somewhat rapidly. Tin shingles and galvanized shingles bear about the same relation to tin and galvanized sheet roofings as the composition shingle does to the composition roll roofing.

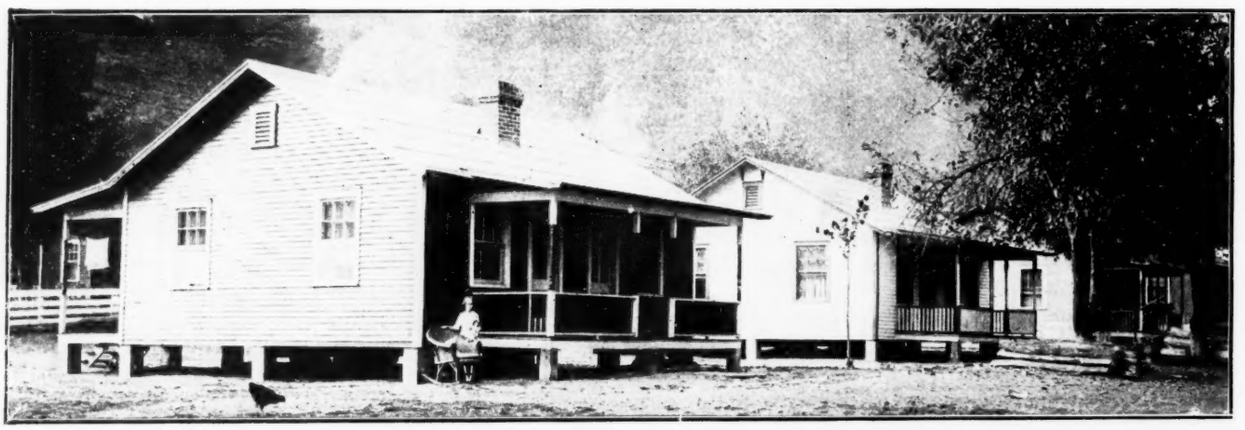
Asbestos shingles have usually been found to give satisfactory service and can probably be classed as one of the more permanent roofings. Care should be taken that the sheathing is absolutely dry at the time of application as some complaint has been made that leaks have been caused by its shrinkage. The applied cost of asbestos shingles is probably three times that of the average composition roll roofing. There is some question as to whether their life is not greater than that of the average industrial dwelling, and for this reason whether their use is desirable for this class of work.

A medium-grade slate with the average freight rate will cost, applied, approximately 20 per cent. less than asbestos shingles, but on account of its weight, which is about 700 lb. per square, heavier roof construction is necessary. Moreover, this roof is subject to breakage. In some instances this is caused by mischievous children.

Wood shingles as applied in former years gave excellent results, but recently there has been much disappoint-

ment occasioned by the necessity for renewing or replacing many shingle roofs after six or eight years of service. The difficulty seems to be in the use of sappy or improperly dried stock and of wire nails of present-day manufacture, which do not have the rust-resisting qualities of the old-fashioned cut nail. It is believed that a good grade of wood shingle applied with heavily zinc-coated cut nails will still give results that will compare favorably with other roofings, when cost is considered.

The highest grade red-cedar shingle, stained before application and put on with zinc-coated nails, will be slightly lower in cost than medium grade slate, and a lighter roof construction will then suffice. A medium grade of cypress or cedar shingle untreated and applied in the ordinary manner will cost approximately one-third less. Close attention should be paid to the laying of the roof. No matter which type is used, careless work may cause a complete failure. With roofing, as with other materials entering into a building, thought should be given to its probable life. On this



MINERS' COTTAGES SUCH AS ARE NOW BEING CONSTRUCTED IN WEST VIRGINIA AND KENTUCKY

depends the depreciation charges and the probable cost of repairs during its existence. It is not well to put into a house any material which will outlast the average material in the building unless the additional life is secured without added cost.

How the House Depreciation Fund May Be Used

It can be assumed that the life of an industrial dwelling is 20 years. Hence the annual depreciation is 5 per cent. A four-room one-story building with a cost of, say $550[1], and having a composition roof of average cost, should be kept in repair at an annual maintenance charge of 2½ per cent. Two-fifths of this maintenance charge, or 1 per cent. of the cost of the building, will provide for repainting at five-year intervals.

A composition roof, such as is supposed to have been used, should last at least ten years; and one-fifth of the maintenance charge, or one-half of 1 per cent. of the cost of the building, for a period of ten years, will provide for reroofing at the end of that time. This leaves a balance of two-fifths, or 1 per cent. of the cost of the building, which should cover all required miscellaneous repairs, which should be made annually.

[1]These figures have reference to conditions obtaining before the war. Present prices are, at least temporarily, much higher.—Editor.

As the roofing applied in the tenth year will serve the remainder of the assumed life of the building, the general repair fund will be increased after that time by the amount of our reroofing charge, and after the fifteenth year by the amount of our repainting charge. This will no doubt be required as miscellaneous repairs will then be heavier.

Buildings Have Little Value After 20 Years

If these maintenance charges are properly expended, it is possible that at the end of 20 years the building will be of some value, even though it has been cleared from the books. However, if it is to be kept in good condition, the repairs will be heavy. It is probable that, judged by the standards at that time, the building will be obsolete; and if there are yet many years ahead of the plant, it will be found profitable to replace it.

Should it be deemed advisable to increase the first cost of the building and use one of the higher-priced roofings with the expectation of it serving the full life of the structure, the maintenance charge of one-half of 1 per cent. for the first ten years could be dispensed with, as approximately this amount will be expended in the additional first cost of the roofing.

Assuming that the rental is based on $1.50 per room per month and electric lights at 25c. per room, and halving the light credit between the building and electric service, there will be a monthly revenue of $6.50. Assuming that the building is always occupied—which assumption is rather unwarranted—there will be an annual revenue of $78 per year, or 14.2 per cent. gross income. Deducting from this our 5 per cent. depreciation and 2½ per cent. maintenance charge, there is a net earning of 6.7 per cent on the investment.

Rents in some sections are higher than this, say $2 per room, on which basis there would be a net income of 11 per cent. Undoubtedly periods of vacancy will bring the earning on the first basis below 5 per cent. and on the second to a very reasonble return on the outlay. It must also be remembered that we have not taken into consideration the cost of the land, which in many cases is an important factor.

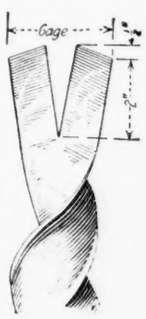
It can be seen therefore, that what is often considered, on account of failure to make the proper charges, to be one of the best earning portions of the total investment, is doing nothing more than carrying itself and in some cases is falling short of this.

Discussion by Readers

Sharpening Coal Augers

Letter No. 2—In answer to the request for information in regard to the sharpening of a twist drill to obtain the best results in drilling the coal, permit me to submit the following method, which I have found to give the best satisfaction, after a number of years of experience in using and sharpening this kind of drill.

The first step is to take the twist out of the drill, for about 3 in. from the end. Then, make a cut in the center and spread the two parts to form a V-shaped opening at the center and so that the two cutting edges of the bit will be separated about ½ in. Cut the two edges of the bit straight and on such an angle that the points at the center will be about ½ in. in advance of the outer edge, which must be forged to the proper gage. I have indicated this arrangement in the accompanying sketch. The gage must be wide enough to give a sufficient clearance to the drill. After the cutting edge has been forged to a thin straight line, it should be dressed with a file.



When a drill is sharpened in this manner by a good blacksmith, little difficulty will be experienced in drilling the coal. The temper required can only be determined by knowing the quality of the steel and the hardness of the coal. This information must be gained by experience in every case. I have found that, with the usual grade of steel furnished for drills, a drawn temper slightly harder than that used in tempering a cold chisel gives good satisfaction. ROBERT L. SINYARD.

Summit Hill, Penn.

Letter No. 3—After reading the excellent description given by R. A. Schmidt, in his letter, *Coal Age*, June 2, p. 968, regarding his method of sharpening coal bits, it occurred to me that I could improve somewhat on the method he has described. Kindly allow me, therefore, to submit the following scheme, which I believe will stand the test in any coal, hard or soft, and permit the work to be performed more easily and in less time, which is an important element in mine smithing:

First, flatten out the bit end of the drill, starting with the 2-ft. length. Then, split the bit back 2½ in., but leave the two prongs close together. Hammer them out, but do not spread them until ready to turn the twist in the bit, which must correspond with that in the barrel of the drill. The twisting of the prongs forming the bit will be found to give them the required spread.

Now, sight along the barrel of the bit to see which prong stands out farthest. Then, laying the bit across the anvil, strike one or the other of the prongs, so as to draw them out or in the required amount, and bring them to the proper gage that will provide a suitable clearance of the barrel in the hole. In doing this it is necessary to stand in front of and facing the horn of the anvil, holding the drill in line so that the bit will rest on the horn one prong at a time. This will enable the bit to be forged to its proper shape.

It will be found convenient to use the vise when giving the bit the proper gage. The jaws of the vise should first be set to gage, say 2½ in. for the 2-ft. drill. Then, when forging the 4-ft. length, set the jaws up ⅛ in. closer. Again, when forging the 6-ft. length of drill, set the jaws up another ⅛ in. This will enable each length of drill to be used with freedom in the hole.

When the bits have all been forged properly, it will be found that an 8-in. file can be used to dress the cutting edge. The file will lie straight through the bit, touching the entire cutting edge of each prong. I have found that a bit of this kind will cut the hardest coal, with a steady machine. The bit can be used for several weeks in very hard coal without requiring to be tempered. W. T. HALE.

Crawford, Tenn.

Water Gage in Fan Ventilation

Letter No. 6—I have been much interested in the question raised by Samuel Dean, in his inquiry regarding the value of water-gage readings in mine ventilation, *Coal Age*, Apr. 21, p. 722. My own experience agrees with that of J. O. Seese, as expressed in his letter, May 12, p. 843. However, it appears that there are men who cite instances that are exceptions to the general rule that an increase in mine resistance will cause an increase in the water-gage reading. In such cases, I would say, as has already been suggested, there must be some hidden cause for such results.

In this connection, allow me to refer to what seems to be an equally anomalous statement, which appeared in a paper read by Thomas Graham before the Joplin meeting of the Mine Inspectors' Institute of the United States of America, last June and published in *Coal Age*, Vol. 10, p. 920. The paragraph to which I refer, in describing an outburst of gas at the Morrisey Colliery of the Crow's Nest Pass Coal Co., reads as follows:

> Still another large outburst of gas occurred Nov. 18, 1904, in which 14 men were smothered. A huge cloud of coal dust shot out of the mine mouth. This was so fine that it was described by eye witnesses as "smoke." The outburst occurred at the face of the center one of the three main levels. For half an hour after the outburst occurred all three openings were emitting gas in such quantities that they could not be approached. The volume of air in circulation was 57,000 cu.ft. per min. The fan never stopped and the self-recording water gage showed no change in pressure. The displacement of coal in this outburst was estimated by the management as 3500 tons. The volume of gas given off in the first 30 min. after the outburst was estimated by various authorities at from 2,000,000 to 5,000,000 cubic feet.

The "three main levels" in which the outburst of gas occurred consisted of two intake and one return entry. The statement that "the self-recording water gage showed no change in pressure" is, to me, surprising, to

say the least. It would seem that an outburst of gas of the volume described, would certainly cause an increase in the mine pressure that should have been registered by the water gage.

I have wondered that the many inspectors who listened to the reading of this paper did not question the statement made by Mr. Graham. I mention this here because it seems to me to involve a principle similar to that suggested in the statement of Mr. Dean, to the effect that bratticing off the mine airway caused no increase in the water-gage reading, for the same speed of fan.

Perhaps some of our mine inspectors can enlighten us further on this question. CRIS. S. DONALDSON.

Lethbridge, Atla., Canada.

[It is possible that, if the three main levels referred to by this correspondent consisted of two intakes and one return and, as stated, the outburst of gas "occurred at the face of the center one of the three," the increase of pressure in the mine due to the outburst was equalized in its effect on the water gage, provided this was located between the intake and return entries.

Without more specific data in respect to the arrangement, the case mentioned by Mr. Graham and referred to by this correspondent can hardly be assumed to present a condition similar to that referred to by Mr. Dean and which forms the basis of this discussion.—Editor.]

Mine Lamps

Letter No. 3—Referring to the letter of W. H. Noone, *Coal Age*, June 2, p. 966, let me say that it is well enough to use the carbide light in mines that do not generate explosive gas and where the conditions are such that gas is very unlikely to be found.

On the other hand, where the seam of coal to be worked is overlaid with other seams, or broken by faults or clay veins, it is very possible that gas will appear in the workings sooner or later. Or, where the seam is overlaid with a permeable sandrock, separating it from other coal seams, danger from the presence of gas may be expected. A mine may be entirely free from gas in the first working, but when the drawing of pillars is commenced, and the roof-rock breaks, the trouble from gas begins. In each of these instances, safety lamps should be used.

While I always favor the use of the best light obtainable when the conditions are favorable, it is my opinion that safety is the first consideration, and the dim light of a safety lamp is to be chosen in preference to the brighter light afforded by the carbide lamp. There is no question but a miner should be provided with a good light that will enable him to detect dangerous roof conditions, which are not always observed in the dim light of a safety lamp. Moreover, it must be admitted that the strain on the eyes is greater when working in a dim light than when objects are made clearly visible by a brighter light. Nevertheless, these advantages of the carbide light must give place to the greater security afforded by a safety lamp where gas is present in the mine.

In the last paragraph of Mr. Noone's letter he says: "It is proper to ask why there should be the need to detect the presence of gas on a miner's lamp when his place is properly ventilated, examined and inspected by mine officials. It would seem that the true remedy lies in the thorough ventilation of the working places rather than in the use of a lamp that will reveal these dangers."

In answer to this statement, it can be said that some of the most disastrous explosions on record have resulted from the use of naked lights in mines that had been inspected and pronounced safe by Government inspectors. It is probable that had safety lamps been used in these mines the explosions would not have occurred and lives would have been saved. It is well known that many mines have been entirely free from gas while working in the solid coal; but, as soon as pillar work was started, these mines have developed gas in quantities that made the use of open lights unsafe.

A large mine of which I had charge was worked exclusively with locked safety lamps. The ventilating current was ample, and the reports of the firebosses seldom showed the presence of gas. In this mine, I had occasion to open up a rib section. After a few falls the rock started to break and gas made its appearance, so that the clean reports while working in the solid, gave place to a constant report of gas, which the air current was unable to remove from the high cavities above the falls.

In order to drain the gas from these workings, a drill-hole was sunk from the surface, but the flow of gas was such that this made little improvement in the mine. I want to ask what would have been the result had this mine been worked with open lights.

In conclusion, let me say that whenever the condition makes the presence of gas possible, nothing but safety lamps of the self-extinguishing type should be used, although the ventilation of the mine is the best possible. Should the ventilation cease from any cause, the mine is liable to become a magazine of gas and disaster is sure to follow. LUMEN.

West Leisenring, Penn.

Letter No. 4—Referring to the previous letters on this subject, which have appeared in *Coal Age*, let me say that it would seem to be rather late in the day now to discuss the relative merits of carbide and oil lamps when the former type of lamp has been so universally adopted in mining practice and its superiority over the oil lamp is so generally recognized. We might with equal assurance attempt to contrast the candle or old kerosene lamp with the gas jet or electric light used in the home.

One correspondent, in contrasting these lamps, offers the objection that a carbide lamp will not detect the presence of blackdamp in the mine. This appeals to me as a weak argument to urge against the use of that light, notwithstanding the fact that the health and safety of mine workers demand the detection and removal of blackdamp from the mine whenever it is present in dangerous quantity.

It is readily granted that the carbide lamp will not show the presence of blackdamp, but it must be remembered that it is the duty of mine officials to see that the workings are kept clear of such accumulations of gas as will render them unhealthy or unsafe for work, and to permit no one to enter and work in a place where gas has accumulated in dangerous quantity. It would be a step backward instead of forward to assume that this duty devolved upon the miner.

The same argument can be urged in regard to detecting the presence of marsh gas, which is generally conceded

to be the duty of the mine officials. Certainly, no one would attempt to detect the presence of firedamp or marsh gas with a carbide light. A mine is well ventilated and safe for work only when the working places will permit the miner to use a clear, bright and sanitary light, with no fear that blackdamp is present in harmful quantity.

Another objection urged by a correspondent is that the miner will waste 8 min. out of every hour in tinkering with his light to get it to burn properly. Let me say that a dayman who is disposed to waste 8 min. of the hour, in this manner, will waste an equal amount of time in other ways when obliged to work with a poorer light. A man who will tinker with a carbide lamp will find something else to tinker with when this is taken from him. When dependent on an oil lamp he will waste as much or more time changing his wick and trimming and filling his lamp, or prowling about the mine looking for oil that belongs to somebody else. In my experience, a miner's efficiency is not reduced by loss of time in attempting to get a carbide lamp to burn properly. On the other hand, he can load coal and do other work more easily and quickly by reason of the better light afforded by the carbide lamp.

Advantages of the Carbide Lamp

A few of the advantages of carbide, for mine lighting, are the following: It is cheaper than oil; gives a brighter light; is cleaner and makes no smoke; and can be lighted with the spark igniter. The last named feature will be appreciated by men who have tried to strike a light with matches that have become damp, or where there is a strong air current and the match is blown out as quickly as it is lighted. Drivers know that it is practically impossible to light an extinguished lamp with a match while riding on a trip of cars.

In closing let me say that the carbide lamp fills a great need in coal mining. It is in a class by itself. Its use has become almost universal in mines where open lights are employed, while the old oil lamp is rapidly becoming obsolete and, in any up-to-date mine, is only to be found as a relic of yesterday. W. H. Noone.

Thomas, W. Va.

Letter No. 5—I read with interest the letter comparing the action of the carbide lamp with that of an oil lamp in blackdamp, *Coal Age,* May 12, p. 843, and want to say that the writer of that letter only considered one side of the question.

While it may be true, as he says, that the carbide light will continue to burn in an atmosphere that is not fit to breathe; and, also, that a man will often lose as much as 8 min. in an hour trying to get the light to burn properly if he is not thoroughly acquainted with its use, it must be acknowledged that there are many advantages possessed by the carbide lamp. I do not hesitate to say that, should a vote be taken among the men who have used this lamp, the result would be largely in favor of the carbide in preference to the old oil lamp.

Kindly allow me to refer briefly to my own early experience in the use of the old oil lamp. I remember coming to this country, some years ago, from a place where safety lamps were used exclusively. I had never used an open-light oil lamp, and my first experience was certainly discouraging. Having bought my cap and lamp and a small oil "cadger" for carrying the day's supply, I put a wick in the lamp and filled it with oil. The wick proved to be too slack, and the oil dripped from the lamp on my head in an almost continuous stream of fire. The flaming drops of oil fell on my arms and clothes, burning me badly.

I ceased work and attempted to put in another wick, which now proved to be too tight and the lamp would not burn. These were not all of my troubles, however, for the weight of the lamp gave me a constant headache. Again, the oil ran out of my cadger, as the lid did not fit tight, and my clothes became so saturated with oil that I presented more the appearance of an engine wiper. It took me several weeks to become acquainted with the use of the oil lamp so as to overcome these difficulties.

Somewhat later, the use of oil at this mine was practically discontinued when "sunshine" made its appearance, which we had to learn how to use, as it did not contaminate the mine air as badly as the oil formerly used. Sunshine was found to be quite an improvement on the old greasy oil lamp, but it took some time to get acquainted with its use, particularly where there was a cold air current in circulation.

Following this experience came the introduction of the carbide light, which I first saw in the hands of the mine inspector of the district, who claimed it was the only light that should be used in the mine. However, like the correspondent to whom I have referred, I felt that the carbide light was too much trouble and for a long time would not use the lamp. This prejudice of mine might have continued to the present time had I not gone to work in a mine where nothing but carbide lamps were used. It took some time for me to become acquainted with the lamp, but I would now consider it a retrograde step to go back to the use of the old oil lamp.

Heilwood, Penn. Thomas Hogarth.

The Carbide Lamp in Blackdamp

Letter No. 2—The account given by the writer of Letter No. 1, *Coal Age,* May 12, p. 843, regarding the action of the carbide lamp in blackdamp, prompts me to give my own experience along this line. It occurred some years ago when I was reopening an old abandoned mine that had been closed down for a considerable period of time.

Miners who had worked in this mine when it was in operation informed me that there had been considerable gas given off in the workings. This put me on my guard, and I was careful to make a close examination of each place before permitting men to enter. For this purpose, I used a Wolf safety lamp.

While I found some firedamp in one entry, the principal trouble was experienced in another entry, which was full of blackdamp. In this entry the Wolf lamp that I was carrying burned with a dim light and was finally extinguished.

Having satisfied myself that there was nothing but blackdamp present, I lighted my oil headlamp, but found that it would only burn when held close to the roof, although the Wolf lamp continued to burn dimly even when placed on the floor of the entry. This convinced me that the Wolf lamp would hold its light longer in the presence of blackdamp than the oil lamp.

My experience in another mine showed clearly that the carbide lamp was little affected by the presence of blackdamp. When making my rounds in this mine, and examining some robbing work, I entered a place where a miner was loading coal and using a carbide light, which burned brightly. It was impossible for me to hold my light in this place, as the oil lamp that I was carrying burned dim and would have been quickly extinguished had I proceeded farther.

My conclusion is that, while the Wolf lamp is more sensitive to blackdamp than the carbide light, it does not show the presence of blackdamp as quickly and as plainly as the common oil lamp. The fact that blackdamp produced little effect on the carbide light proves clearly, to my mind, that that lamp is not safe for use where blackdamp is liable to collect. U. S. WILSON.

Briceville, Tenn.

Need of Drawing Timber

Letter No. 5—In regard to the need of drawing timber in longwall work, it has alway been my custom to pull all standing timber as soon as the packs take the weight. The only thing left, in the way of timber, were the cogs that were built for the protection of the roads and, of course, were allowed to remain.

It has always been my aim to have the packs well built so that they would take the weight as quickly as possible. In my opinion these packs are not intended so much to carry the weight of the roof as to throw a sufficient weight forward to break the coal after it is mined, without crushing and destroying the longwall face. But the main purpose of the packs is to prevent the roof from closing down on the roadways, which must be kept open to give free access to the working face.

It is my conviction that whenever we get careless and allow timbers to remain in the waste, then is when we commence to make trouble for ourselves and much expense.

There will, no doubt, come a time when an occasional post is better left in for a little longer time and cannot be drawn, later. In such a case it is best to weaken the post by chopping or by sawing it partly through. Or, such a post can be destroyed by boring a hole and inserting a little piece of dynamite. The explosion of the dynamite will destroy the post and prevent its longer interfering with the uniform settlement of the roof.

There are cases where the roof or floor is soft, and a single post left standing in the waste will be forced into the bottom or top and cause no ill effects. All timber left standing in the waste, however, must be considered as so much waste material, and the practice of leaving timber standing has the effect to encourage the building of false packwalls. It must be remembered that the success of longwall work depends on the building of good packs. W. H. LUXTON.

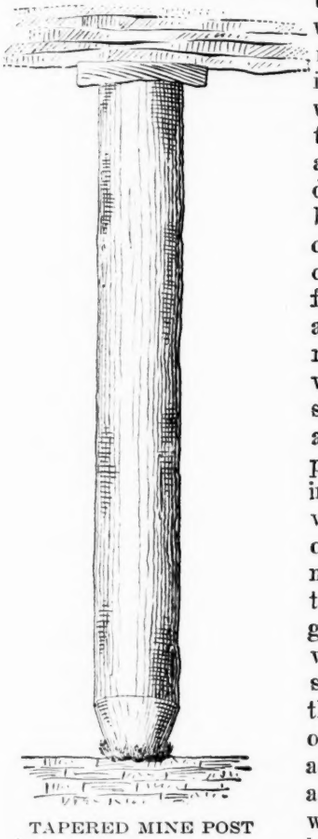
Linton, Ind.

Letter No. 6—Kindly allow me to refer to the letter of Edward Jones, *Coal Age*, May 12, p. 845, and to say that I cannot agree with what he says in regard to leaving "certain timbers standing in the goaves," even assuming, as he adds, that "such timbers are not too strong."

Like Jacob Riley, whose letter, June 2, p. 965, I fully indorse, my experience of many years in longwall advancing, in England, leads me to say that no timber should be left standing in the goaves or packs, in longwall work. Such a practice would, in my opinion, be a source of danger, because it would tend to throw the weight of the overburden forward on the coal face, and this would either break the roof off close to the face or crush the coal and make too much slack.

In my experience, I have known of instances where timber left standing in the goaves caused the roof to break 2 ft. over the coal. The standing timber prevented the roof from settling on the packs. Where timbers were left in the packwalls on the roadside, the packs would be forced out of line and cause much trouble and expense.

Whenever necessary to use timbers in the gateroads it has been my practice to taper the foot of the post, as shown in the accompanying figure. Then, when the post took the weight the bottom would burr up, allowing the roof to settle steadily till it rested firmly on the packwalls. I have usually found that the roof came to rest and settlement ceased at a distance of from 60 to 80 yd. back from the face of the coal. The principal roads could then be ripped to afford the necessary headroom and no further work was necessary. In longwall advancing, the back timbers should be drawn regularly and moved forward. No posts should be left standing in the gob, as that would prevent a uniform subsidence of the roof strata. Allow me to cite an instance where timbers left standing in the gob caused much trouble and would have eventually destroyed the coal face had they not been removed. Another man and myself were asked to draw these timbers, as it was evident that they were causing the roof to break at the face.



TAPERED MINE POST

Before starting to remove the back timbers, however, we set three rows of posts parallel to the face of the coal, at a regular distance apart. Then, going back into the goaves, we proceeded to draw the timbers, which was not a comfortable job, as one may readily imagine. The drawing of these timbers, however, relieved the weight on the coal face and the trouble ceased there and on the gateroads, as the roof was thus permitted to settle down firmly on the packs. I hope this experience may prove of value to some who are working the longwall method of mining. W. DICKINSON.

Oak Hill, W. Va.

Letter No. 7—Referring to the question of drawing timber in longwall mining, I wish to say that the general practice, which has been successful in this field, is to leave the timber standing in the gob.

For many years I have been closely associated with longwall work, which is the common method of mining in the northern Illinois coal field. During that time, I have attended many gatherings of mining men when the question of longwall mining has been discussed. In no instance can I remember that the practice of leaving the timber standing in the gob has ever been questioned. I believe I am correct in saying that the practice is so generally accepted in this region that the discussion of the question here would certainly be a one-sided affair.

GEORGE FOLEY, Mine Manager,
Oglesby, Ill. Oglesby Coal Co.

Letter No. 8—In regard to the question of the need of drawing timber in longwall work, I am inclined to agree with what Jacob Riley has said in his letter, *Coal Age,* June 2, p. 965, particularly where he cites an instance in which men were fined for leaving a single prop standing in the gob. Such a practice would, in my judgment, prove most effective in securing the greatest economy in the extraction of the coal and reducing the amount of timber required for the operation of the mine.

There are numerous machines for drawing post timbers with safety to the men performing the work. Persons employed for that purpose, however, should be experienced and careful men, who would draw all back timbers as the face of the coal advanced. Aside from the actual necessity of drawing the timber in longwall work, so as to provide a uniform settlement of the roof on the packs, what appeals to me is the economy effected when this timber is drawn and used again.

Suppose, for example, in a certain longwall mine from 3000 to 5000 posts are drawn and reset in a single month. If only one-third of this number of posts is left in the gob, it would represent a loss of from $100 to $150 a month or more, according to the price of timber. This would mean quite an item in the cost-sheet for the month. Such a saving of timber spells war-time efficiency and war-time economy and should be encouraged in the present situation. ROBERT W. LIGHTBURN.

West Leisenring, Penn.

Repair Supplies Reduce Cost

Letter No. 5—The question of keeping repair supplies in stock at the mine, in order to avoid unnecessary delay when a machine breaks down, is a most important one. The annoyance and expense caused by finding that the particular part needed to repair a machine that has broken down is not on hand is clearly shown in the letter of Daniel F. Smith, *Coal Age,* May 5, p. 800, which I read with great interest.

There are companies that are taking this matter into serious consideration and realizing the need of standardizing the machines used in their mines, so as to reduce the number of parts that it is necessary to keep in stock where there are machines of different sizes and types employed for the same work in the mine. This is one of the most important features developed in this discussion. It has proved to be such in more than one instance in my own experience in coal mining.

In the mine where I am now employed as night foreman there are two pumps of the same make and size. It happened, a few days ago, that one of these pumps burst its flywheel, and it looked as if we were going to have serious trouble, as the pump was an important factor in the operation of the mine.

A little reflection, however, showed that it was possible to transfer the flywheel from one pump to the other and operate the two pumps alternately, in this manner, until a new flywheel could be ordered and received from the factory. It is clear that if these pumps had been of different size or make, the breakdown would have resulted in the flooding of a portion of the mine and the cessation of operations until the necessary repairs could be made. This, however, was avoided by a little extra work in transferring the flywheel as often as it became necessary to operate the other pump.

LACK OF STANDARDIZING MINE EQUIPMENT

In one mine where I worked for a time there were eight mine locomotives in use and these were of five different makes; namely, three Morgan-Gardner machines, two Goodman single-type machines, one Jeffrey gathering motor, one General Electric gathering motor and one Whitcomb gasoline locomotive. In the same mine there were four different makes of mining machines and three different makes of pumps. The car wheels were of three different styles, one being the old-time open-truck wheel, and the others roller-bearing wheels of different sizes and makes. The same lack of standardization was evident in all classes of the mine equipment, and it was clearly impossible to keep a full supply of repair parts for all of these machines.

There are many difficulties in the way of standardizing the equipment of an old mine where different types and kinds of machines are already in use. The tendency in such mines is to get what service is possible out of the present equipment and take chances on breakdowns and consequent delays.

GOOD MACHINES OFTEN INJURED BY PATCHING

Mine electricians and mechanics do their best, under such circumstances, to patch up the machinery when a breakdown occurs. This practice, however, only postpones the evil day, for a serious breakdown is liable to occur sooner or later when patching will be no longer possible.

The work of repairing a good machine should never be left to one who is not capable of performing the task in a thoroughly intelligent manner. It often happens that much harm is done to other parts of the machine by patching up a breakdown instead of sending at once for the parts required. The injury thus done is often beyond repair, and the machine must be operated at less than its capacity or sent to the scrap heap.

In closing, let me suggest that the purchase of mine equipment is too often delegated to a man who has little knowledge of the requirements of the work to be performed. In every case the mine officials in direct charge of the work should be consulted and their ideas taken into consideration, as they are the men who must use the equipment and are best acquainted with the work it must perform. Nothing is to be gained, but much will be lost by compelling men to use machines that are not adapted to the work in hand. OSTEL BULLOCK.

Herrin, Ill.

Contributors to *Coal Age* must give their names and addresses, which are not published if so requested.

Inquiries of General Interest

Sinking a Shaft to Coal

Kindly allow me to ask for information in regard to the proper method of timbering the first 40 ft. of a shaft to be sunk 165 ft. to the coal. The first 40 ft. of this shaft passes through the following strata: Yellow clay, 3 ft.; sandy clay, 1 ft.; yellow clay, 7 ft.; sandy shale, 12 ft.; soft shale, 17 ft. Beneath are a series of strata of varying thickness, consisting of rock, shale, slate, soapstone, sandstone, fireclay and coal.

It has been decided to concrete the first 40 ft. of the shaft, and this concrete curbing will rest on 1 ft. of a rock stratum, which is underlaid with 12 ft. of shaly slate. The size of the shaft is to be 10 x 17 ft. in the clear. The concrete wall will be 7 in. thick.

What I most desire to know is how to timber, temporarily, the first 40 ft. of the excavation, which is to be concreted; and how the concrete forms should be constructed, and the work of concreting accomplished. Should the excavation be carried below the foot of the concrete wall before the work of concreting is commenced? Please state what size lumber should be used in building the concrete forms. Also, at what speed should a sinking bucket be hoisted when sinking a shaft?

From the answers and discussions that have followed numerous other inquiries in *Coal Age*, I am satisfied that it is no mistake to submit a proposition of this kind, however simple it may appear, as one is then always better fitted to meet and overcome the various difficulties that may arise and which are not always anticipated in the rush to perform the work. The discussion of this question will no doubt assist others in performing similar work. ENGINEER.

———, Ind.

In replying to this inquiry, we would suggest the following, in the hope that it will lead to many other suggestions from our practical readers: Start the work by constructing a heavy frame of 10 x 12-in. timbers, squared to form a rectangle 11 x 18 ft. in the clear. Align and level this frame on the site of the shaft and bank it around with clay so as to prevent surface drainage flowing into the shaft. This frame will form the top of the concrete lining when complete.

Now, start the excavation within the frame, cutting back, beneath it, 7 or 8 in. from the face of the timbers, thus leaving 4 or 5 in. of earth supporting the frame all around the shaft. Further support should be provided by allowing the ends of the timbers to extend 2 or 3 ft. beyond the frame on all sides.

The walls of the excavation should be left quite rough, so as to form a good bond with the concrete lining and prevent surface drainage. The first excavation should be carried down 40 ft. to the rock, supporting the walls temporarily by means of timber frames and sheathing, braced by cross-buntons or struts, in the usual manner. On reaching the rock, the cut is squared up and the excavation carried down about 3 ft. farther, making the line of this cut an inch or so inside of the line of the face of the finished concrete lining, which will be flush with the face of the timber frame at the surface.

The concrete lining is now started from the rock as a foundation. Forms for the support of the concrete while setting should be made of 3-in. plank. These forms are 3 or 4 ft. deep and their lengths such as will correspond to the clear length and breadth of the timber frame at the surface, which will also be the dimensions, in the clear, of the concrete section of the shaft. These forms should be set in place and securely braced to hold them in position while ramming the concrete.

The end forms should be cut 6 in. shorter than the width of the concrete section, or 10 ft. 6 in. in length, the face forms being the full length of the concrete section, or 18 ft. long. This will permit the end forms to set inside of the face forms, which they will support, while they, in turn, are supported by heavy strips, or cleats, spiked on the back of the face forms 3 in. from the ends.

Having set these forms in position by plumbing from the four corners of the timber frame at the surface, a 1:2:5 concrete, made by thoroughly mixing these proportions of good portland cement, sharp, clean sand and broken rock that will pass a 1½-in. mesh, is thoroughly rammed into the space between the walls of the excavation and the timber forms. These latter must be well braced to prevent their spreading while the operation is in progress.

The concrete walls should be reinforced by embedding old rails in the concrete, at intervals of 12 or 18 in. apart. In this connection, the reply to an inquiry on reinforced-concrete shaft lining, *Coal Age*, May 5, p. 804, will be of interest.

To expedite the work and to form a better joint between the successive layers of concrete, two sets of forms should be used, the second set being placed in position above the first so as to continue the work of concreting while the sections below are setting, which should not require more than 10 or 12 hours. The sheathing and temporary supports used in the excavation should be removed as the work of concreting proceeds upward.

When the concrete section is finished, the work of excavating the shaft below is started and continued to the coal. This portion of the shaft should be curbed with 4-in. planking, in the usual manner. The excavation must be made sufficiently large to allow for the thickness of the curbing and provide the required clear dimensions of the shaft. It will be well to protect the top of this curbing at the foot of the concrete wall by a bevel of good cement mortar all around the 6-in. offset at this point. It may be well to provide weep holes, here, to permit any water to drain off that would otherwise accumulate behind the concrete curb. The speed of hoisting buckets in shaft sinking will vary from 20 to 40 ft. per second.

Examination Questions

Pennsylvania Bituminous Firebosses' Examination, Apr. 13, 1917

(*Selected Questions*)

Ques.—Where are the explosive gases found in mines and how are they detected?

Ans.—Methane or marsh gas (CH_4) is mostly found in the new workings of mines where the gas has not drained from the strata. This gas is also found accumulated at the head of a pitch or in rise workings, or in crevices in the roof or other void places. The gas is frequently found on falls where it is apt to accumulate in dangerous quantities. It is also to be found where the face of a chamber or heading has penetrated a fault. In seams generating marsh gas, it is generally found accumulated at the roof of chambers or headings and in rise workings wherever the ventilation is insufficient to dilute and sweep away the gas generated.

Methane or marsh gas is detected by observing the action of the flame of a safety lamp. Where gas is present in the mine air, the flame of the lamp is surmounted by a blue cap, which is more clearly observed when the lamp flame is first reduced to a mere glimmer. The height of the flame cap increases with the amount of gas present, and as the mixture approaches the inflammable limit, the lamp flames; or if the mixture is explosive, first small and then larger explosions will occur within the lamp.

Carbon monoxide may be found in the waste, in the region of a mine fire or where slow combustion is taking place in the gob, especially if the ventilation is poor. It is generally found in dangerous quantity in the afterdamp of an explosion of gas or dust. The gas is often found accumulated behind a standing shot, it being produced by the explosion of the powder in the hole where the supply of air was not sufficient for the complete combustion of the gases generated by the explosion.

Owing to its extremely poisonous character, carbon monoxide is best detected by observing its effect on small animals, as birds and mice, which show signs of collapse and are prostrated by smaller percentages of the gas and in less time than is required to produce the same effect on persons.

Hydrogen sulphide (H_2S) is to be found in poorly ventilated and damp places where the coal and adjoining strata contain pyrites or sulphide of iron (FeS_2). The disintegration of the pyrites in the presence of moisture produces hydrogen sulphide, which is very poisonous as well as explosive when mixed with air. Hydrogen sulphide is carried in solution in mine water that has filtered through formations containing sulphur compounds. One volume of water will dissolve three volumes of this gas, at normal temperature and pressure. The gas is detected by its smell in the vicinity of mine pumps and drainage sumps where it is disengaged from the water holding it in solution.

Ques.—In a mine where locked safety lamps are used, what is the greatest percentage of gas, or what indication of gas on the safety lamp would guide you in determining that a place was unsafe for workmen to enter or remain at work?

Ans.—The percentage of marsh gas in mine air that should be considered as being unsafe for work, except for the purpose of improving the condition of the air, will depend largely on the character of the coal with respect to the fineness and inflammability of the dust produced in its working. Assuming average conditions of bitumous mines, especially where machines are used in mining the coal, it is generally considered as unsafe for men to work if the proportion of gas in the air exceeds 1 per cent. Under the conditions just mentioned, this percentage of gas can be detected.

In the mining of harder and less inflammable coal and under improved conditions with respect to dust, the flame of the safety lamp will ordinarily show no indication of gas when less than 2 per cent. is present in the air, which would then mark the danger point for general work in the mine. This does not apply to the working of anthracite coal.

Ques.—What safety lamps are you familiar with? Name five essential features of a safety lamp.

Ans.—The first question is to be answered from the candidate's own knowledge of safety lamps. The essential features of a good working lamp are: Good illumination; simplicity of construction; protection against strong air current; security of lock fastenings; strength and durability of parts.

A good lamp for testing for gas must enter the air below the flame, thereby providing a free circulation within the lamp; its construction must be simple and durable; the lamp must be of convenient size and easily handled; it should burn a nonvolatile oil, and there should be some means of gaging the height of the flame cap observed when testing for gas.

Ques.—An airway 7 x 8 ft. and 1000 ft. in length is passing 20,000 cu.ft. of air and gas per minute, the proportion of the mixture being one of air to one of gas. By reducing the quantity of air one-half, what would be the velocity of the current in feet per minute and what would be the result if a lighted safety lamp were placed in this mixture?

Ans.—The proportion of gas to air being 1:1, there are 10,000 cu.ft. of air and 10,000 cu. ft. of gas in this current. When the air volume is reduced one-half there will be 5000 cu.ft. of air and 10,000 cu.ft. of gas, making the total volume of air and gas 15,000 cu.ft. per min. The sectional area of this airway is 7 x 8 = 56 sq.ft. and the velocity of the reduced current is therefor 15,000 ÷ 56 = say 268 ft. per minute.

The percentage of gas when the air volume has been reduced one-half is (10,000 ÷ 15,000) 100 = $66\frac{2}{3}$ per cent. A lamp placed in this mixture would be quickly extinguished.

Coal and Coke News

Washington, D. C.

Active coal mining operations are to be undertaken by the Alaskan Engineering Commission. A mine is to be opened on tract No. 12 in the Matanuska field. A partially developed property near Anchorage is to be leased. With the increasing demand for coal, it has been found necessary to undertake these operations in order to relieve shipping of coal tonnage from Seattle. It had been hoped that individual operators would develop sufficient coal to prevent the Commission's embarking in the mining business. Private operators have been unable to meet anything like the demand for coal and it is to supplement the available supply and in the hope of making unnecessary further importations that the Commission is undertaking this work.

Tract No. 12 of the Matanuska field represents the area from which the coal was obtained that was tested out so successfully by the Navy. Mining operations will not await the completion of the branch of the Alaskan R.R. The work of opening the mine will be begun at once with the expectation that a considerable tonnage of coal will be ready for shipment when the railroad reaches the mining site.

For some time the Engineering Commission has been receiving some coal from William Martin, who was operating on a promising bed near Anchorage. Recently a fault was encountered in this property and the operator was without sufficient capital to justify the expense that would be required in the effort to relocate the vein. For this reason he has been unable to carry out his contract with the Commission.

In order to facilitate the securing of a larger local coal production, the Engineering Commission has sub-leased the Martin property and will resume the operation of the mine. It is anticipated that the coal bed can be found again without great difficulties.

The Federal Trade Commission's report on the bituminous coal situation is coming in for some adverse comment. Some people are of the opinion that it is entirely too general. Had the findings been more specific, it is believed by those who criticised the report greater good could have been accomplished. They point out that the report contains little that is new, while the remedies suggested are not likely to produce results.

Arkansas anthracite operators have perfected an arrangement to furnish the U. S. Geological Survey daily and weekly reports on shipments and working time. James K. Gearhart, president of the Fernwood Mining Co., with the coöperation of J. G. Puterbaugh, the member of the Committee on Coal Production to whom is assigned the Arkansas territory, is assisting the Survey to secure similar information from other fields in which there are no coal trade organizations.

A conference on the technical features of resizing coal was held this week at the Bureau of Mines. George S. Rice, chief mining engineer, presided. The Geological Survey was represented by C. E. Lesher, while Walter Y. Durand represented the Federal Trade Commission. The fear was expressed that any change in sizing would be likely to do more harm than good. It was pointed out that the sizes have been arrived at as a result of years of experience and represent the development of efficient methods of burning anthracite. That the operators and railroads might benefit from the suggested changes but that the small consumer was likely to lose, was one view expressed at the meeting.

A considerable drop in the anthracite market in August or September is anticipated by a number of operators who have been in Washington this week. This prediction is based largely on the fact that people who are now clamoring for coal are getting it. Not being able to rid himself of all vestings of the panic of last winter, the consumer is putting in his entire stock of coal at this time. Statistics show that most of the coal being marketed is going into the consumer's storage. As a result, it is predicted, the demand will ease off later in the summer. It seems to be the opinion that the general effect of this heavy buying movement early in the season will be for the good since it has brought about a general storing of coal at this time rather than in the fall when there is certain to be heavier demands upon transportation facilities.

The criticism that many of the committees of the Council of National Defense are duplicating the work already done or being done by the regular government bureaus can not be applied to the Committee on Coal Production. Mr. Peabody's committee has been operated as a clearing house. Information needed to work out the tremendous problems of the fuel situation comes to the committee from many sources. The regular machinery of the government is used to whip this information into shape. When specific information is desired, it is secured through established channels. A proof of this is the fact that the Committee on Coal Production has no office force, other than two or three stenographers.

Due to the heavy demands for information being made by the Committee on Coal Production, C. E. Lesher, the coal statistician of the Geological Survey, has been compelled to more than double his force. Employees also have been added in the Bureau of Mines.

Effective July 1 all coal for transshipment at tidewater ports will be pooled. This decision was reached in Washington Monday at the Tide-Water Pooling Conference over which Howard Elliot, former president of the New York, New Haven & Hartford R.R. and now chairman of the railroads' war board, presided. Regulations for operating the system were adopted. It was agreed that the pooling should be conducted through an organization to be known as the Tidewater Coal Exchange.

The exchange is to be in charge of a commissioner who will be selected by a committee. Announcement of the selection of the committee is to be made next Monday. Recommendation by the railroad committee that the exchange be located in Washington met with favor. Some were of the opinion that the exchange should be at one of the ports so that it would be possible to eliminate the expense of having a deputy commissioner at one of the pools. The pooling ports probably will be New York, Philadelphia, Baltimore and Norfolk.

That the anthracite operators are doing all in their power to relieve the coal situation in New England was pointed out by S. D. Warriner, of Philadelphia, who addressed the conference by special request. His analysis of the situation held out decided hope. He predicted that by Sept. 1 the anthracite companies would be abreast with the demand. Through the withdrawal of restrictions and by the release of ocean-going tugs the government has aided greatly in having normal conditions restored, Mr. Warriner pointed out. He also called attention to the fact that every effort is being made to prevent delays in loading barges and that conferences are being held with the presidents of the New England railroads with the object of securing more prompt movement of coal through the several gateways, where the congestion has been a serious factor in handling the all-rail shipments. Mr. Warriner believes that the transportation problems both on land and sea are in a fair way to be solved.

Larger storage facilities in New England were urged by Mr. Warriner. He declared emphatically that none of the domestic sizes is being used to make steam but that the coal going into New England is going to the regular consumers, practically each one of whom is buying more heavily than in previous years. This is due, he said, to the fact that larger amounts are being stored and are being stored earlier in the season. Then too, he explained, in prosperous times the tendency among consumers is to burn coal with less regard for economy in the amount consumed.

There was a difference of opinion between Mr. Warriner and some of the New England men present as to the present extent of the coal shortage. Mr. Warriner thinks the shortage will not exceed 20 per cent. with the tendency toward overcoming it increasing. The New England representatives estimated the shortage to be from 40 to 50 per cent.

HARRISBURG, PENN

Charging that unwise management of the State Workmen's Compensation Insurance fund is responsible for a deficit which officials of the fund are now asking the Legislature to cover, the joint committee on appropriations decided on June 6, to refuse the request for an appropriation of $250,000 to pay expenses until July 1, 1919.

The chairmen of the Senate and House committees made it clear to officials of the state fund that after next January state insurance to cover compensation risks must be made at a rate to permit the bureau to take care of its expenses. The Legislature of 1915 appropriated $300,000 to pay the administrative expenses of the board until July 1, 1919. On the first of this month, with over two years still to run, the board had expended $203,132.51 of this appropriation.

During the examination of members of the board called before the committee, it developed that stock companies doing insurance business in this state offered to take compensation risks on coal mines at a lower rate than is now in effect, but that the Insurance Department of the state, insisted upon a higher rate as a matter of safety for the insurance carrier.

Speaker Baldwin of the House, who did most of the questioning, declared that the business of the state insurance department is to take care of the interests of the policyholders, and that the ruling affecting coal mines cost the coal operators almost $200,000 more than they needed to pay.

"The combined capital of the companies offering this lower rate is $304,000,000," Speaker Baldwin said, and asked the members of the board if they did not think they were able to withstand the losses without impairing their responsibility. This year the same insurance companies wanted to insure coal mines for $3.37, yet the state has compelled the operators to pay $270,000 more in premiums, notwithstanding that the policyholders would be fully protected even if the companies had lost money at this rate.

Members of the committee declared the dividend of 15 per cent., declared by the state insurance fund, was bad business. To date $72,535.90 was paid out in dividends and more payments are to be made.

President Wilson, in a letter to Governor Brumbaugh, of Pennsylvania on June 6, announced his opposition as to the breaking down of any laws to benefit labor in the matter of hours and labor.

The President made his position plain in his reply to Governor Brumbaugh's request for his views as to whether it would be advisable as a war emergency step to relax the labor laws. His letter follows:

"I think it would be most unfortunate for any of the states to relax the laws by which safeguards have been thrown about labor. I feel that there is no necessity for such action, and that it would lead to the slackening of the energy of the nation rather than to an increase of it, besides being very unfair to the laboring people themselves."

Anthracite region citizens who are fighting for adequate legislative remedy to meet the mine cave menace have centered all their hopes upon the possibility that the relief measures will not become part of the graveyard of bills still waiting consideration when the legislature adjourns finally.

That possibility is to convince the Senate leaders that as a measure of political expediency, the anthracite regions must be considered, and those who deny adequate relief will be made to feel the wrath of the hard coal people.

To put this plan into effect a meeting of all the anthracite county legislators has been called for next week. This meeting will be held in the hope that Senator W. E. Crow of Fayette County, Republican state chairman, can be induced to attend, and to view the earnestness with which the legislation is demanded.

The House has passed the Dawson bill dedicating 50 per cent. of the proposed

state tax on coal to the producing municipalities without a dissenting vote. It was explained that Senator Crow and other legislative leaders had come to the conclusion to adopt Representative Woodward's proposal to lay a 2 per cent. ad valorem tax upon coal for two years only. Senator Crow was not in attendance at the session this week, and definite action on this proposal was not announced. It is understood that at the meeting of hard coal representatives next week, the coal tax as well as the mine cave bills will be considered.

PENNSYLVANIA

Anthracite

Plymouth—After having been idle just one year, Buttonwood No. 22 colliery of the Lehigh & Wilkes-Barre Coal Co., will be opened on July 1, with 350 employees. It was closed July 1, 1916, for improvements, the completion of which will permit it to be operated on a more extensive scale.

Harwood—The Lehigh Coal and Navigation Co. is spending over $350,000 in electrifying its coal plants at Harwood and Cranberry and making a number of other improvements, as well as driving new tunnels.

Pottsville—Mahanoy Plane is about to resume operations after an idleness of two months. The big main shaft which broke closing the plane, arrived on a special train from Bethlehem Steel Works on June 8.

Rockville—According to what is being said among rivermen, the Susquehanna river coal business this year will be large in volume because of the demands of the future and the efforts of every concern to get a pile stored up. Putting money into a coalpile seems to be pretty good business and the rivermen say they are going to work as long as the river stays open and they can find coal.

Pittston—Just 60 men became eligible for positions as mine foremen and assistant mine foremen as the result of the state examinations held in Pittston on May 8, results of which were announced this week. Thirteen passed the examinations in the Ninth Inspection district and 47 in the Eighth.

Snydersville—The Lehigh Coal & Navigation Co. has commenced the erection of a series of homes to form a local village for its employees.

Hazlebrook—The Maryd colliery has increased the wages of monthly employees at its Hazlebrook, Midvalley and Upper Lehigh mines $10 to $15 a month.

Bituminous

Johnstown—The Valley Smokeless Coal Co. has commenced the erection of new tipples at Hogback and Krings. New machinery will be installed to increase the present output.

Carrolltown—Fire, June 8, destroyed the tipple of the Carrolltown Coal Co. The plant will be rebuilt.

Boswell — The Standard-Quemahoning Coal Co. is negotiating with the Penn Electric Co. for the installation of electric haulage in the company's plant.

Portage—A syndicate of Johnstown men recently organized to take over the operations of George Pearce & Sons, at Portage, has closed the deal, and about 3000 acres of coal will be mined on a royalty basis. John H. Cooney is the president and R. Schnabel is treasurer of the new concern.

Freeport—A hole 14 in. in diameter and 440 ft. deep has been drilled to drain the mines of the Sonman Shaft Coal Co. This work was in charge of Kessler & Fincrock of Freeport.

WEST VIRGINIA

Worthington—The operation of small wagon mines is not confined to Pennsylvania or Ohio. This may be demonstrated by the fact that A. Friedman, of Fairmont, recently leased a 3-acre tract of the Pittsburg coal bed near the mouth of Helen's Run and will begin operations thereon at once. The coal will be hauled to the B. & O. station and loaded on cars for shipment. The mine will be operated on a royalty basis.

The Bethlehem Coal Co. has purchased the Holbert farm on Helen's Run outside the corporate limit and joining the W. E. Shaver addition to the town of Worthington from M. C. Cochran and Curtis Davis. It is understood that the price paid was about $10,000 for the 50 acres, including the Sewickley bed of coal underlying this tract.

Baxter—Plans for materially increasing the tonnage of coal produced at Baxter in the mine of the Monongahela Valley Traction Co. are being completed. It is intended to increase, by several hundred tons, the amount of coal being hoisted daily. Improvement in the transportation service underground, and the working of new headings, are the lines along which the increase will be made.

Monongah—The Monongah mines have been operating every day for the past month, with the exception of a few half-day holidays. The smaller operations worked by private companies are also proceeding with full force. It is the intention of a new private coal company to open other mines in Monongah during the summer. This coal will be hauled to the B. & O. station by wagon.

Morgantown—Although many millions of dollars have been spent in coal deals in West Virginia during the past year, it is believed that a record for coal prices has been set in a sale of three acres of coal by F. M. Meredith, between Fairmont and Morgantown. It is said that Mr. Meredith received $6500 for the tract, or something over $2000 per acre.

Charleston—Vigorous protest has been filed with the Public Service Commission against the Pittsburgh, Cincinnati, Chicago & St. Louis and the Baltimore & Ohio railroads in connection with their proposed advance of 15c. per ton on shipments of coal from the vicinity of Wheeling to Clarksburg. This protest originated with the Philipps Sheet and Tin Plate Co., of Clarksburg.

ALABAMA

Birmingham—Judge E. H. Gary, chairman of the executive committee of the United States Steel Corporation, announced at a banquet tendered him and other members of the committee in this city, that the Tennessee Coal, Iron and Railroad Co. would expend approximately $11,000,000 in the construction of new plant facilities at Fairfield, work to begin as soon as detail plans now being formulated can be completed. Mr. Gary estimated the investments of the Steel Corporation in the Birmingham district at present at $32,000,000. The additional plants to be constructed will call for increased coal production, and it is understood that developments along this line will soon be announced. Judge Gary was accompanied on his trip of inspection by George W. Perkins, Henry C. Frick, George F. Baker, Percival Roberts, Jr., and John Reis, vice president of the U. S. Steel Corporation.

KENTUCKY

Frankfort—No less than five coal operators have complaints before the State Railroad Commission, asking that that body require the railroads to provide them with a sufficient number of cars to keep their mines operating. Cain & Thomas, attorneys, of Louisa, Ky., represent a group of small mine owners on a spur of the Chesapeake & Ohio at Gallup, Lawrence County, on which it is claimed the railroad has declined to deliver cars, making the statement that it is not convenient to do so. J. L. Reeder, of Pineville, Ky., charges that the Federal Coal Co., though it permits use of its spur track for carrying merchandise, declines to permit its use for coal from mines on this line. R. S. Friend, of Prestonburg, alleges that the Chesapeake & Ohio is showing a "disposition to squeeze out the little fellows who are trying to ship coal over its lines" and makes a specific complaint. The Black Diamond By-Products Co. says that it cannot get permission to build a spur to the Williamson & Pond Creek branch of the Norfolk & Western. The complaint of Alva Karns, of Island, Ky., that the Consolidated Coal Co., with whose spur his is connected under contract, has notified the Louisville & Nashville not to permit him to move cars over its spur and that the road spiked his spur so that he can't use it. This latter case is not under the commission's jurisdiction, it is said.

Jenkins—An epidemic of measles has been raging here and several deaths are reported to have resulted.

Bevier—Twenty houses, homes of miners in the employ of the Lam Coal Co., located at Blue Ridge, just outside this town, were destroyed and another 20 damaged by a tornado which swept over the place on Wednesday, June 6, resulting in the deaths of five persons. The storm descended just east of the mine shaft of the Lam Coal Co. and took a southeasterly course, causing much minor damage.

Middlesboro—J. C. Hoskins and John Morgan, who operated the Magnet Coal Co., have sold out and are opening the Tan Yard Hill Coal Co. mine. The new company has a capital stock of $50,000.

Sergent—The development work, opening mines, grade work, etc., for the Whitley-Elkhorn Coal Co. has been started here. J. M. Freeman, formerly with the Consolidation Coal Co., McRoberts, Ky., is manager. This firm will develop the Lewis, Frazier and Hogg tract of about 250 acres. About 500 tons daily will be mined.

OHIO

Martin's Ferry—The county recorder's office has completed the record of several coal deals filed by the Ohio River & Western Coal Co. to the Cambria Collieries Co. The deal required three deeds and a mortgage for $1,000,000. It is expected that several more such documents will be filed shortly on account of the large coal deals which are being transacted. Many attorneys are now busy doing abstract work prior to the making of deeds.

Steubenville—The Wayne Coal Co. is preparing to open the Knox field in the near future, and a railroad is planned from this field to the C. & P. R.R. to connect near Hammondsville. The Wayne township field is now being stripped with much success. Two large shovels are in use and a third is planned. The Wayne Coal Co. is the largest coal stripping concern in the world. Its headquarters are in Steubenville.

Lloydsville—The Ohio Coal Co., of Wadsworth, Ohio, which recently purchased 650 acres of coal land between Benwood and Lafferty is offering to give, free of cost, a lot large enough to erect a fair sized dwelling house and sufficient ground surrounding it to use for gardening purposes to anyone desiring to build a home with a view to locating there permanently. On the principal street the lots are donated with the specifications that a $1000 structure be erected. On other streets the lots are given with the proviso that a building costing not less than $600 be built.

Youngstown—W. H. Davis, of Youngstown, representing a number of capitalists, is said to be negotiating for the purchase of 7000 acres of coal land near McArthur, O., owned by New York interests. If the deal goes through, a company with a capital stock of $500,000 will be formed to operate it. The tract will be tapped by branch lines from the Baltimore & Ohio and Hocking Valley Railroads. Clay and shale deposits are also on the land.

Cambridge—W. B. Alexander and T. Edward Alexander have reopened the Guernsey mine, east of Cambridge, on the Baltimore & Ohio R.R. and the mine will be placed in full operation within a few weeks. The Guernsey mine has been closed for the past 7 years, when it was operated by W. B. Alexander and associates, but owing to the present demand for coal, it was decided to re-open it. The mine had been operated for over 20 years, and was one of the largest and oldest mines in the Guernsey valley.

ILLINOIS

Tamaroa—Dowell & Co., which has extensive holdings in Perry County, is sinking a large new mine here at an outlay of about $150,000. St. Louis capitalists are interested in the company.

Marion—Cosgrove & Co. of Chicago, with offices in Philadelphia and Johnstown, Penn., has bought the Colp mine at Pittsburg with several thousand acres of coal rights. The Marion & Southeastern R.R., about 6 mi. in length from here to Pittsburg, is included in the deal. Plans are under way for complete new top works for the mine and a rehabitulation of the road.

O'Fallon—The East St. Louis & Suburban Electric Railway is being double-tracked for several miles west of here to afford greater facilities for handling the output of the Prairie and St. Ellen mines next fall and winter.

Eldorado—The J. K. Dering Coal Co. of Chicago with mines at Hillsboro, Ill., has bought the property here of the Eldorado Coal and Mining Co. The local mine gets out 1500 tons daily.

Duquoin—The Milwaukee & St. Louis Coal Co., recently organized here, has purchased the Jupiter No. 2 and No. 5 mines near here. These mines were the property of Dowell & Co., and the transactions involved $350,000. The new owners will make extensive improvements and will open

the old abandoned properties. This will necessitate several miles of railroad siding and new equipment of all mines. The company will furnish its own trains for the transportation of its miners. Several Milwaukee and St. Louis people have furnished the capital.

Staunton—The new mine that is being sunk by the Superior Coal Co. at Wilson, a new town 7 mi. south of here, which is intended to be the largest operation in the country, is now down about 200 ft. It will be about three months before the mine is in operation. The air shaft is being dug at the same time as the main shaft. A 40-acre tract has been laid out in town lots and houses are being erected on them for the miners. The capacity will be between 12,000 and 15,000 tons a day and all the output will be sent to Chicago over the Chicago & Northwestern Railroad.

Murphysboro—The West Virginia Coal Co. of St. Louis has purchased the Gus Blair mine here and several hundred acres of the last coal remaining in the Big Muddy field working the No. 1 and No. 2 seams. The property will be developed for twice its present tonnage. This gives the new owners mines in each of the four southern Illinois fields, i. e., Big Muddy, Carterville, Mt. Olive and Standard.

Herrin—In an explosion Saturday night at the Weaver Mine, owned by the Rend Coal and Coke Co., near here, nine men were killed and two others were seriously injured. The men were removing an old track in the old workings and it is supposed that the explosion was caused by one of the men walking into an accumulation of gas. Little damage was done to the mine, which employs 600 men. Two rescue teams from here spent the night recovering the bodies. The killed were Ira Sanders, night foreman; Otis Reynolds, Amos Mezo, Guy Vickery, Roy Weathers, Charles Rice, John Gossage, I. S. Good and Ezra Adams. The injured were Thomas Cox and W. A. Brewer.

IOWA

Des Moines—Iowa's coal output for 1916 shows a slight falling off as compared to 1915, according to figures just completed by the state mine inspector's office. The total output of the Iowa mines in 1916 was 7,217,977 tons, as compared to 7,530,088 in 1915. This is a decrease of 312,109 tons. The falling off was due to the abandonment of a few mines which have been worked out. However, new mines are being developed in 1917 and put in operation, which will increase the output over that of 1915. There were 243 mines in operation in Iowa in 1916, employing 15,195 men.

IDAHO

Driggs—The coal shortage predicted for next winter has revived interest in the coal deposits of the Teton valley, and state mine inspector R. N. Bell, in a report to the Governor estimates there is over 400,000,000 tons of commercial coal available with little development. The coal is of high quality and of the same grade as the Rock Springs coal, its actual fuel content being 92.27 per cent. The only company to start development work is the Teton Valley Coal Co., organized in 1916 by L. Hillman, D. C. Driggs and J. P. Clark. This firm was unable to finance the construction of a necessary 12-mile branch railroad. A survey for a branch line has been run by the Oregon Short line to the coal fields, but the company officials decline to state whether or not it is their intention to construct it. The deposits lie close to the Wyoming state line and it is believed they are a continuation of the Wyoming coal fields.

OREGON

Baker—The State Bureau of Mines and Geology is outfitting a one-ton truck with a complete analysis and engineering department, which will travel throughout the state to make careful and systematic examinations of coal properties. The results of the investigations will be available at once to the owners who will then have a knowledge of the bodies exposed, their value and quantity. The investigations will show where the commercial coal begins and where it ends, thus furnishing information for intelligent development, and point the way for a careful systematic opening of the property. Such systematic investigations will assist the owner in forming his conclusions as to the proper method of development, or the advisability of continuing development work in one part of the mine or abandoning it in others. The investigation will of course be without cost to the owner and it will be made at his request and with his coöperation. Coal mine operators throughout the state are welcoming the new step for an intelligent survey of the coal mines of Oregon has never been undertaken before.

WASHINGTON

Wilkeson—Thirty new coke ovens have been completed for the Wilkeson Coal and Coke Co. and work will be started at once on the construction of 30 more to be completed by the last of July.

Carbonado—The Pacific Improvement Co. which operates coal mines here will construct several coke ovens, having been awarded the contract to furnish the Bunker Hill & Sullivan Mining Co. mines in Montana with coke.

Oroville—For a number of years the evidence of the existence of coal in this vicinity has been known, and in a few instances perfunctory efforts at prospecting for it have been carried on, but recent discoveries have aroused considerably more interest than ever before. J. W. Steward and H. L. Prentice of this place have uncovered what appears to be a large bed on the Similkeneen River near here and two miles south of this discovery another has been made by J. J. Malloy, who has negotiated a lease with parties who will take in a diamond drill this fall for further prospecting.

Foreign News

Cumberland, B. C.—Five men, members of a survey party headed by George W. Bertram, chief surveyor of the Canadian (Dunsmuir) Collieries, were killed by an explosion which occurred in the mine on June 3. Owing to the fact that it was Sunday, the surveyors were the only men in the mine. The cause of the explosion is not known. There was an explosion in the same mine about 14 years ago, when about 60 men were killed.

Personals

H. W. Townsend has been appointed sales representative for the Aldrich Pump Co. of Allentown, Penn., in the Pittsburgh district.

Charles E. Hetzer, of the Cumberland office of the Davis Coal and Coke Co., was recently appointed local auditor of this company, with offices in Cumberland, Maryland.

W. C. Hamilton has tendered his resignation as assistant cashier of the American Trust and Savings Bank, and will devote his entire time and attention to the interests of the Pratt Fuel Co., of which he is one of the principal owners.

M. M. Griest, for the past 10 years associated with the Carnegie Coal Co., as sales manager, has organized the Pittsburgh-Cambridge Coal Co. with offices in the Union Arcade, Pittsburgh, Penn., where he will specialize in selling the product of his own mines.

Charles E. Sandberg has been appointed general manager of the Western Pocahontas Fuel Co., of Richmond, Va., with headquarters at Dorothy, W. Va. Simultaneously B. T. Jellison received notification that in future he would act as purchasing agent for the corporation, with headquarters at Richmond.

Obituary

William W. Green, president of the Garden City Fan Co., died at Niles, Mich., on June 2 at the age of 79 years.

David Anthony, 68 years old, for many years barnboss at the No. 9 colliery of the Pennsylvania Coal Co., was stricken with apoplexy while at work on June 7 and died shortly after his removal to his home, on South Main St., Pittston, Penn.

Industrial News

Des Moines, Ia.—It costs $2.25 per ton to produce a ton of screened coal in Iowa, ready for shipment at the mine or for hauling, according to estimates made by the state mining department.

Uniontown, Penn.—Announcement was made on June 8, of the sale of an undivided one-half interest in 4500 acres of coal in Washington County, by Thomas B. Semans, of Uniontown, to W. H. Donner, of the Cambria Steel Company.

Lexington, Ky.—W. A. McDowell, has been elected president of the Kentucky Union Land Co., which has extensive holdings in the timber, coal and oil lands of Eastern Kentucky. Arthur Cary was elected vice president and John R. Downing secretary and treasurer.

Logan, W. Va.—The Frieze Fork Coal Mining Co., a Michigan Corporation doing business in the State of West Virginia under foreign corporation franchise has sold its property and has made application to the Secretary of State for discontinuance of its franchise.

Frankfort, Ky.—Six Lancaster, Ky., coal dealers have petitioned the state Railroad Commission for relief and reduction in the coal rate from the Jellico field, stating that the rate on block and nut coal to Louisville is $1 a ton and 90c. on steam coal, while the rate to Lancaster, which is 100 miles nearer the coal fields is $1.20.

Addison, Penn.—One of the most important coal deals in Somerset County, in some time, has recently been closed. The Listonburg Coal Co., formerly owned by Senator James W. Endsley and others, has been sold to Cole & Shriven, a Maryland operating firm. The consideration was in the neighborhood of $100,000.

Philadelphia, Penn.—C. S. Butler, for the past seven years advertising manager of the Hess-Bright Mfg. Co., of Philadelphia, has resigned that position to become manager for the Carlson-Wenstrom Co., of Philadelphia. This firm is about to place upon the market a high-grade, double-row ball bearing, as well as a complete line of thrust bearings.

Columbus, Ohio—Suit has been entered in United States court by the Pere Marquette R.R. against the Russell Run Coal Co., of Columbus, asking $78,241 damages for failure to deliver between 50,000 and 60,000 tons of coal, as per contract. The railroad set forth a schedule of delivery which, it claims, was agreed upon between the coal company and the railroad and which, it claims, was not lived up to by the coal company.

Logan, W. Va.—The Thurmond interests of Logan County have taken a lease on 124 acres of coal land at Rum Creek Junction adjoining the Rum Creek Colliery Co. The lessee has the privilege of leasing 1100 acres additional, and will probably exercise this right soon. A company has been organized, and incorporation papers applied for. This firm will be known as the Thurmond Coal Co. and a capital of $150,000 is provided for.

Martins Ferry, O.—What may be considered as initial activity leading to the construction of a Fairpoint, New Athens & Cadiz R.R. is seen in plans to build a spur from the C. L. & W. division of the B. & O. up the Crabapple Creek Valley to develop coal lands recently purchased by Frank Gable and G. W. Henderson, of Fairpoint, and A. W. Cooley, of Wheeling. The railroad tracks will be laid at once. They will connect with the main line of the road just above Fairpoint. All the surveying is complete and ready for work to begin.

Bluefield, W. Va.—Coal shipments over the Norfolk & Western railway during the month of April last continued to show a decrease as compared with the same month of last year, and a falling off of 148,704 tons in total tonnage carried during the first four months of 1917. During April of this year, 2,723,368 tons of bituminous product was hauled by the Norfolk & Western. In the first four months of 1917, 10,304,061 tons of coal were carried by the railroad, while for the same period last year the total was 10,707,364 tons. Operations in the coal fields are reported as being considerably handicapped at the present time because of the shortage of labor and coal cars. Relief from these conditions is, however, anticipated.

Des Moines, Ia.—Southern Iowa coal operators have appealed to the state railroad commission to aid in a fight to prevent the Chicago & Alton from reducing the freight rate on Illinois coal from Springfield, Ill., to Kansas City. They claim this move will enable Illinois operators to sell their coal in Kansas City cheaper than Iowa coal, thus shutting off that market to Iowa mines. No action has been taken. Iowa men say the reduction by the Chicago & Alton road of 80c. a ton will result in a rate war. Other roads must needs meet the new rate in order to retain their business, which will result in a general reduction which would work to the advantage of Illinois operators. The Chicago & Alton rate now applies on coal screenings which are used at manufacturing plants. Iowa operators have some big contracts for this kind of coal in Kansas City that are threatened by the invasion of the Illinois coal.

Market Department

GENERAL REVIEW

Federal Commission tightening its grip on the anthracite trade. Bituminous buyers anticipating relief by the proposed pooling arrangement. Lake prices continue high, but sentiment is mixed. Heavy demand in the Middle West from outside markets.

Anthracite—The slowly tightening grip of the Federal Trade Commission on the hard-coal trade is the dominant feature of the market. While the Commission is working very quietly and issues no statements of its plans, such of these as are now developing, cannot but have a beneficial effect. The scheme for encouraging shipments to the Southern timber sections in order to utilize the empties for the movement of much needed mine timber into the regions is to be commended; likewise the apparent effort to increase shipments to the New England trade in order to get that section well stocked should the proposed plan for withdrawing a number of barges from coastwise shipping materialize. In addition to this, a more careful distribution of coal is resulting from the detailed statement, the Commission is requiring the agencies to submit. These activities of the Commission have tended to make the trade rather unsettled, though there is a growing confidence in the outlook which was greatly increased by the record statement of shipments reported for last month.

Bituminous—The soft-coal market continues very unsettled though with an unmistakable tendency downward. The plan for pooling Tidewater shipments has created a distinctly better feeling among buyers who are confining their purchases to the most urgent needs, pending further developments. Coal has generally not been arriving in much greater volume, though contract shipments are being better taken care of, due largely, however, to the very small amount of coal now under contract. In some sections buyers are showing a tendency to be more discriminating as to quality while others are buying aggressively, apparently determined to make sure of some reserve stock while the coal can be had. A great deal hinges on the size of Government requisitions, which, if large, will have an important bearing on the market.

Lake Markets—The general situation is slightly easier, the trade showing a tendency to await some new developments. The results of the pooling arrangement are rather mixed so far, the plan having had a beneficial effect in some instances, while in others it has been the reverse. Occasional rumors of slowing down in industrial activity at some points are causing some uneasiness, though investigation of these rumors usually proves them untrue. In the meantime, arrivals at distributing centers continue only about sufficient to meet current requirements, and it is still impossible to accumulate any reserves. Embargoes have again been placed against the shipment of some of the Southern coals, north of the Ohio River, which will tend to limit the supply in that market still further. The extra demand for fuel for threshing purposes will be a factor in the situation soon.

Middle West—There has been a moderate recession in prices and the situation is notably less tense though there is a ready demand for all the coal offered and no indications of any slowing up in consumption. There is no improvement in shipments, car supply still being inadequate, and embargoes continuing to interfere with distribution. The demand is generally as strong as at any time during the past winter, and there is considerable inquiry from outside markets which do not ordinarily draw on the Middle Western field for supplies. There is much uneasiness concerning the proposed plans of the Government for limiting the distribution of coal to prescribed zones, as this will likely eliminate the Eastern coals entirely from this market.

A Year Ago—Restricted output sustains the anthracite market. Pittsburgh labor difficulties continue the outstanding feature in the Eastern market. Both exports and Lake trade on the increase. Middle Western situation firm.

Comparative Average Coal Prices

The following table gives the range of mine prices in car lots per gross ton (except where otherwise noted) on 12 representative bituminous coals over the past several weeks and the average price of the whole group for each week:

Boston	Year Ago	June 16	June 9
Clearfields	†$1.05@1.55	$4.75@5.50	$4.75@5.50
Cambrias and Somersets	1.30@1.75	5.00@5.75	5.00@5.75
Pocah. and New River[1]	† 2.80@2.85	7.50@8.00	7.50@8.00
Philadelphia			
Georges Creek (Big Vein)	1.90@2.00	6.00@6.25	6.25@6.50
W. Va. Freeport	1.15@1.25	5.25@5.50	5.25@5.50
Fairmont Gas mine-run	† 1.45@1.55	5.25@5.50	5.75@6.00
Pittsburgh (steam coal)[2]			
Mine-run	* 1.55@1.65	4.50@5.00	4.75@5.00
2-in	* 1.65@1.75	4.50@5.00	4.75@5.00
Slack	* 1.50@1.60	5.00@5.25	4.75@5.00
Chicago (Williamson and Franklin Co.)[2]			
Lump	† 1.50@1.60	3.50@3.75	3.25@3.75
Mine-run	* 1.20@1.30	3.00@3.50	2.75@3.50
Screenings	† .95@1.05	3.00@3.75	2.75@3.75
Gross average[3]	*$1.50@1.66	$4.77@5.23	$4.80@5.24

Gross Averages		1917	1916
Feb.	3	$4.66@4.86	$1.94@2.10
Feb.	10	4.70@4.95	1.73@1.91
Feb.	17	4.67@5.04	1.71@1.90
Feb.	24	4.95@5.29	1.64@1.84
Mar.	3	5.10@5.48	1.56@1.74
Mar.	10	5.36@5.61	1.53@1.68
Mar.	17	4.80@5.19	1.46@1.65
Mar.	24	4.64@4.94	1.49@1.66
Mar.	31	4.20@4.44	1.46@1.61
Apr.	7	4.07@4.36	1.44@1.60
Apr.	14	4.01@4.35	1.45@1.61
Apr.	21	3.83@4.14	1.46@1.62
Apr.	28	3.81@4.12	1.45@1.62
May	5	4.04@4.40	1.45@1.59
May	12	4.64@4.98	1.44@1.59
May	19	5.08@5.54	1.42@1.56
May	26	5.10@5.58	1.41@1.55
June	2	5.00@5.46	1.47@1.63

[1] F. o. b. Norfolk and Newport News. [2] Per net ton. [3] The highest average price made last year was $4.80@5.33 made on Nov. 25. * Price lower than the week before. † Price higher than the previous week.

BUSINESS OPINIONS

Iron Age—The scramble for steel-making pig iron and for melting steel scrap has gone on for another week, with no abatement of the excited conditions. Bessemer pig iron has advanced to $55 on small sales and its further ascent presents no difficulties. This remarkable effort to get hold of raw materials without regard to price, coming when the finished steel market is under check awaiting Government awards, has put the entire trade much at sea as to future steel supply for general consumption and the lengths to which prices will go.

American Wool and Cotton Reporter—Release by the British Govenment of 16,000,000 lb. of Australian wool for the United States has occasioned considerable discussion in the wool trade in this country. Speculators have entered the market in the West, and the growers are asking high prices. The situation is so uncertain that there is no real basis of value. The demand for South American wool, largely for Government purposes, continues. Prices show an advancing tendency.

Bradstreet—Reports of slow, backward retail trade, which has been only slightly improved by warmer weather, throw into bold relief by contrast the unparalleled activity in the leading industrial lines—iron, steel, shipbuilding, coal mining, textiles and lumber—which industries move along to the tune of advancing prices, while at the same time government buying tends to divert interest from regular trade channels. In a word, demand in industrial lines, greatly accentuated by the needs of war, is insatiable, and while every ounce of energy is being used to keep up with requirements, supplies of labor or of transportation facilities are wholly inadequate.

Dun—Distinct signs of revival in distributive trade have accompanied more seasonable temperatures, and the recovery in winter wheat has fortunately continued. Present indications are for a materially larger yield than recently seemed likely, and this means much in a year when requirements are not only at the maximum, but are also especially pressing. Commercial failures this week are 261 against 277 last week, 314 the preceding week and 287 the corresponding week last year.

Marshall Field & Co.—Wholesale distribution of dry goods for the current week is running about even with the corresponding period of 1916. Road sales for immediate shipment are slightly behind those of last year, but are considerably in excess of last year's volume for future delivery. Merchants have been in the market in smaller numbers. Collections are larger. The market on domestic cotton goods is strong.

Dry Goods Economist—Every condition points to continuance of the advance in prices for fabrics of all kinds. As these enter largely into the production of nearly all the lines that make up what are classed as dry goods, it is evident that the trade is moving toward higher costs generally.

CONTRACT ITEMS

Cleveland—Contracts for Pittsburgh No. 8 coal for industrial purposes aggregating 375,000 tons, have been closed at prices ranging from $3.25 to $4.50 per ton, f.o.b. mine, and one railroad contract involving 150,000 tons of mine-run per year has been closed at $1.85, the contract to run for three years.

Columbus—There was just one lone bidder when the Ohio Board of Administration was ready last week, as per advertised date, to open estimates for furnishing the state with 6000 tons of coal. This bidder asked $6.60 per ton, for coal which was contracted for a year ago at $2.75. Only forty-eight hours was given the board in which to accept or reject. The bid was turned down.

Toronto, Can.—In response to a request for bids on the Board of Education contract involving 10,000 tons of anthracite, there was only one reply. The price quoted was $8.75 per ton, and there was no guarantee of delivery.

Current Events

Prices—The persistent decline in prices, amounting to about 20c. last week and 10c. the week before, came to a standstill the current week, the loss being only 3c. per ton. Sentiment is very mixed, however, and the decline would have been greater had it not been for an unexpected stiffening of Middle Western prices, which are largely responsible for maintaining the average. All Eastern prices were either unchanged or showed losses with the single exception of Pittsburgh slack coal.

Production—Anthracite shipments for the first five months of the current year amounted to 30¼ million tons, as compared with 27⅞ million tons in 1916 and slightly better than 26⅞ million tons in 1915. The May shipments were the second highest in the history of the anthracite industry, amounting to 6,917,000 tons and exceeding the April shipments of this year and the May shipments of last year by 1⅛ million tons.

Shipments from the Pittsburgh No. 8 district in Ohio for May totalled 904,000 tons, showing a decrease of 135,000 tons, as compared with the same month last year.

Transportation Notes—A number of Kentucky operators have petitioned the State Railroad Commission to compel the railroads to provide them with sufficient number of cars to keep their mines operating.

The embargoes against the shipments from certain fields to points north of the Ohio River have been once more established.

The Toledo & Ohio Central R.R. is receiving deliveries on its order of 1000 new coal cars.

The Pittsburgh Coal Producers' Association has issued a statement, copies of which were sent to all the interested departments in Washington, condemning the existing car shortage. The association states that the member companies have a combined capacity of 50,000,000 tons per annum, and that production is being restricted at the rate of a million and a half tons per month, due to inadequate transportation facilities, and that last month they received 30,000 less cars than they required.

The Baltimore & Ohio R.R. recently tried an experiment in billing all coal received on certain days in the week to the Lake trade and some other roads are now contemplating doing this also.

The New England trade is looking forward to June 24, when a large number of passenger trains are to be cancelled throughout that section. A very material improvement in the fuel movement is expected then.

Pooling Tidewater Shipments—Plans for pooling tidewater shipments are progressing, though rather slowly, due largely to opposition from shippers of high-grade coal. These operators take the position that indiscriminate mixing of their fuels with those of lower grade would be unfair to them unless some provision could be made to adequately reimburse them.

Fuel Shortage Items—The report of the Committee on the Coal Situation of the Manufacturers and Business Men's Association of New York City, appointed on May 15, was made public on June 9. The report shows that New York City consumes 12,614,000 tons of anthracite a year. It recommends that the Federal Trade Commission be given power to fix the prices at the mines, determine what is a reasonable profit and secure an adequate supply for the retailers and consumers. The report was adopted at a meeting of the Association on June 11 and the committee was to place the matter before the authorities in Washington later in the week.

At a town meeting held in Brooklyn on Monday of this week a suggestion was made that a coal dictator be appointed by the Federal authorities to control the mining, and distribution of coal. A committee was elected at the meeting to go to Washington and make a protest at the excessive prices for coal. On the same day the Manufacturers Association of Brooklyn unanimously adopted the report of this committee which laid the cause for the trouble on speculators and sales agents. This last committee has made quite an exhaustive study of the question, having investigated conditions in the mining fields. The committee also took the matter to Washington this week.

Mayor Church of the city of Toronto, Can. has recently returned from a tour of the mining regions in the United States, made in connection with the proposed plan for establishing a municipal coal yard. The Mayor found that transportation difficulties might interfere with the plan, and it is highly doubtful if it will be carried through.

Federal Trade Commission—The Commission recently sent a general letter to all members of the anthracite coal trade, stating that it would not countenance negotiations where jobbers' gross profits exceed 20c. per ton in the East and 25 to 30c. a ton in the West. Where the profits were greater than this the Commission announced that it would inform the Senate of the sale, giving the name of the party making it.

Ocean Shipping—The following is the present status of the progress made in increasing our shipping facilities: It was officially announced on June 9 that contracts for 160 wooden carriers had been let within the preceding ten days. There was publication of details relating to orders for 30 wooden ships, 32 of composite model, steel and wood, 18 of steel and 8 wooden hulls, and contracts for 50 more are soon to be awarded. General Goethals says orders already placed call for $75,000,000. Eleven of the seized German vessels are in use, 12 more will be ready within three weeks and 5 will be added in July. This week 12 ships owned by companies or foreign governments were launched at our shipyards and our builders are at work on 700 more, three-fourths of them made of steel. While waiting for execution of its orders, the Shipping Board will have power to take these new vessels for national service.

There has been a very substantial improvement in the movement coastwise to New England which, it is understood, is due to the fact that the Government expects to requisition a number of barges in that service shortly and special efforts are being made in the meantime to get that section as well supplied as possible.

Foreign Markets—The French coal production for January amounted to 2,011,000 tons, as compared with 1,861,000 tons in November. The increase was due to the release from military service of the miners belonging to the classes of 1891 to 1899, and still further increases are expected soon by the return of the classes of 1900 to 1902, which occurred on Dec. 20 last.

The Italian Commission in this country issued a statement on June 7 that plans had been made for discontinuing manufacturing in that country, and also for the more intensive utilization of water power by which it was expected to reduce the fuel requirements of the country by one-half. The Commission stated that American coal laid down in Italy ready for consumption cost as high as $70 a ton in some cases. (The coal freight rates to Italy today are quoted about $100 per ton.—Editor.)

Press dispatches from Washington on June 12 stated that the Spanish Government was endeavoring to make arrangements to substitute at least some American coal for the English product which she is now using.

Steel Orders—Unfilled orders on the books of the Steel Corporations at the first of the current month showed a loss of a quarter of a million tons, as compared with the first of the preceding month. The loss is ascribed to the corporation's policy of reserving capacity for expected heavy orders from the Government.

Crop Report—The Government grain report, giving conditions as of June 1, indicates a wheat yield of very little better than last year and considerably smaller than the bumper crop of 1915. Current indications point to a yield of only 16,000,000 bushels more than the short production of last year.

Atlantic Seaboard

BOSTON

Somewhat easier tone to market at Hampton Roads although prices are unchanged. Better receipts at piers. Pennsylvania grades hold at last week's quotations. Anthracite situation continues tense.

Bituminous—Undeniably there is a better feeling with regard to the immediate future of the Pocahontas and New River market. So far there is only a slight increase in shipments from the mines, but labor difficulties seem to be lessening and the railroads are making consistent efforts to increase car supply and improve movement. It is too early to make predictions but the outlook is more hopeful than a month or two ago. Much depends now upon the size of Government requisitions. If the volume is to be as heavy as some contemplate, there will be renewed anxiety coastwise over light shipments of commercial coal. At this writing dispatch is better at Hampton Roads and deliveries on contract are fairly regular. A few spot sales are still being made but the absence of marine reports helps out the reticence of shippers and very little is heard of such purchases in the open market.

The majority of those buyers who are obliged to keep in close touch with the market are still postponing any but purchases for urgent needs. There is a growing opinion here that the Federal shipping board will have to take notice of current rates of water freight and it is probable that no single move would have so prompt an effect on spot prices. Of course the bulk of the coal coming from Hampton Roads is on contracts that range from $7@8 delivered alongside here, subject usually to additional mining costs, etc., as stipulated when the contracts were undertaken, but consumers who did not arrange for their entire supply are paying a heavy tribute in no light fashion. Exorbitant water freights are looked upon as just as much a subject proper for investigation as speculative profits in coal.

Further progress has been made toward pooling Tidewater receipts at Hampton Roads, especially for Government use. So far nothing has been accomplished on behalf of railroad and industrial requirements. As pointed out before, at other loading ports receipts are better balanced with the arrival of boats and the tonnages running to any one consignee are not nearly so large. At this end a large volume of coal is received at individual rehandling plants and steamers are discharged with less regard for car-supply than when all the coal arriving was discharged directly into cars at railroad wharves.

There is very little change in the demand for coal inland. Renewed embargoes against all-rail delivery have about offset the general slackening of inquiry and prices on cars Boston and Providence show no material change from a week ago. The prices still being paid show a determination on the part of many buyers to get coal while it can be had. Fuel cargoes on the market are more scattering in request and are a better sale loading or enroute than waiting in the harbor. At the same time prices have not slid off as was expected. There is more discrimination as to quality than was the case a month ago. Buyers, too, are using every resource to avoid paying the current high water freights. There is a good deal of looking forward in this market to June 24 when a large number of passenger trains are to be cancelled. Consumers like the gas companies who have coal contracted for f.o.b. loading port are hoping that car service will permit them later to take deliveries all-rail rather than be at the mercy of the marine transportation interests who control small fleets of barges that used to be operated by some of the anthracite companies.

Output is now showing a steady increase in the Pennsylvania districts. If car supply for New England could only show like improvement there would be less anxiety. Better deliveries are being made on contract to the points where embargoes do not apply and there is less speculative coal coming forward. A few jobbers have had their fingers burned lately by having too much coal arrive "on consignment."

There is less spot coal also at Philadelphia and New York for dumping into boats. Prices f.o.b. vessel show a higher level of prices comparatively than coal yet to be shipped from the mines. The Clearfield rate to Philadelphia for deliveries beyond the Capes is $1.30, but quotations are nearer $2 in advance of those at the mines.

So much of New England is under embargo at the moment that it is hard to report reliable figures. The Boston and Albany R.R. gateway is open, however, and prices range from $5@5.50 according to grade. In some of the out-of-the-way places, like Bar Harbor, Me., bituminous is retailing at $14 per net ton of 2000 lb.

Bituminous at wholesale, f.o.b. loading ports at points designated, are quoted about as follows:

	Clearfields	Camb. and Somersets
Philadelphia	$6.00@6.75	$6.25@7.00
New York	6.35@7.00	6.50@7.35
F. o. b. mines	4.75@5.50	5.00@5.75
Alongside Boston (water coal)	10.75@11.25	11.00@11.50

Anthracite—Independent coal in company-owned transportation continues to be offered at prices varying from $7.50, f.o.b. New York, to $10.75, alongside delivery point. It is the exception where a retailer has any stock for more than a hand-to-mouth business. Dealers who in normal times got 10 to 20 cargoes in April and May have had to struggle along on two to four barges and all hands are wondering as to the outcome. Practically every tidewater dealer who has access to a track is making every effort to get all-rail shipments, even in places where the rate runs up to $4.50 and $5 a ton. At that, the cost compares favorably with coal by vessel when the latter is chartered on the open market.

NEW YORK

Independent domestic coals practically out of the Tidewater market. Companies unable to supply regular customers. The steam coals active though prices are easier. New England buying heavily of bituminous coals. Spot tonnage scarce.

Anthracite—The market for independent domestic coals is inactive as none are being offered for spot loading. Demand for egg, stove and chestnut is steady and although it is reported good prices have been offered for quick shipments, no sales are being reported.

Unsettled conditions still prevail owing to the activities of the Federal Trade Commission in placing price restrictions on independent coals. In addition several civic and other organizations have kept the public agitated by statements as to excessive prices which tends to make the trade uncertain. Jobbers are complaining about the short supplies they are getting from the independent operators who usually furnish practically all the coal needed to take care of regular trade.

While the tonnage figures for May show an enormous increase over the previous month, receipts at Tidewater are not believed to have been in proportion. Apparently the line and Western trade is being taken care off first.

Local dealers will soon be called upon to name prices at which they will furnish coal for several of the city departments until May of next year.

Domestic sizes are scarce. Even the companies claim they have small supplies at the docks and none to sell to new customers. One size is in as heavy demand as the other. There are unconfirmed reports that buyers have offered from $6.85 to $7.75 f.o.b. for egg, stove and chestnut, but no actual sales are reported.

Current quotations, per gross ton, f.o.b. Tidewater, at the lower ports are as follows:

	Circular	Individual
Broken	$5.40@5.55	.....
Egg	5.40@5.55	.....
Stove	5.65@5.80	.....
Chestnut	5.70@5.85	.....
Pea	4.10@4.55	$5.40@6.00
Buck	4.00@4.15	5.00@5.25
Rice	3.40@4.05	4.00@4.25
Barley	2.90@3.10	3.25@3.50

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—The feature of the market was the rush of New England buyers to New York on Monday urging the necessity of hurrying coal to that section of the country, most of which has been under embargo by one of the leading carriers for several days and which order had been cancelled, causing dealers to press their claims for supplies. This heavy buying resulted in a stronger market, prices advancing from 25 to 50c. per ton according to grade.

The trade is waiting for the report of the committee of operators selected by the Philadelphia convention of last week to consider the advisability of pooling supplies. So far no word has been received from the committee but the plan is regarded favorably by most shippers, at least as a war emergency plan.

Operators continue to complain of poor car service, requirements having been on a 50 per cent. or less basis. Demand has been active but much of the buying depends upon the urgency of the buyer, and the ability of the seller to make reasonably quick shipments.

Bunkering has been active during the week owing to the large number of vessels leaving this port.

Current quotations, per gross ton, f.o.b. Tidewater, for various grades are as follows:

	Port Reading	South Amboy	Mine Price
George Crk. Big Vein	$7.25@7.50	$7.25@7.50	$5.25@5.75
Tyson	7.00@7.25	7.00@7.25	5.00@5.50
Clearfield	6.75@6.85	6.75@6.85	5.00@5.50
South Frk	.....	7.00@7.25	5.00@5.50
Nanty Glo	.....	7.00@7.25	5.00@5.50
Som'r. Co	6.75@6.85	6.75@6.85	4.75@5.25
Que'ho'ing	7.00@7.25	7.00@7.25	5.00@5.50
W. V. Fa'rm't Th'r'qua	6.75@7.00	6.75@7.00	4.75@5.00
Mine-run	6.75@7.00	6.75@7.00	4.75@5.00
West. Md.	6.75@7.00	6.75@7.00	4.75@5.00

PHILADELPHIA

Anthracite receipts here light due to heavy shipments to other markets. Individuals make good deliveries. Commission allows increased maximum price. Individual prices show changes. Strong demand for egg coal. Bituminous slightly lower. Railroad contracts expire. Pooling plan stirs trade.

Anthracite—Judging by the small arrivals here it would appear that those who are acting for the Federal Trade Commission in regulating the distribution of coal, have found markets where the necessities are more urgent. The shipments here by the big companies have been reduced to a minimum and we understand are not to be increased for at least another week or ten days. New England is receiving the best shipments due to the fact that the movement there will soon be greatly curtailed by the Government requisitioning an increased number of coal barges.

We have also learned that one of the big companies expects to ship a large proportion of its output for the next ten days to Southern points and that the empty cars will be used for carrying much needed mine timbers on the return trip. There is also a rumor that the Government has ordered a certain number of cars South to be used in the general timber trade. Naturally with this heavy outside movement the market here is shorter than ever, though certain of the retail men seem to be receiving quite fair supplies. One of the largest retailers has been advertising in the local press recently stating that they had coal to deliver which was most unusual, as the customary spring advertising campaign stopped quite abruptly after the announcement of the new circular. Another dealer also advertised but probably the results of their advertisements surprised their authors as they appeared only one day.

The individuals have made more liberal shipments to some of their special trade here, while the companies have been neglecting theirs. To be sure the prices are higher but this seems to be little cause for complaint.

The principal worries of the retailer are to secure sufficient coal to keep his working forces intact, and to fill the cellars of houses that are about to be closed for the summer months, the demands from which are growing more insistent each day. The sales agents state frankly that they cannot be disturbed with individual cases and that if they can supply the coal in sufficient quantities by Sept. 1 they will feel they have done their duty.

A feature of the week has been the greatly increased demand for egg coal, due probably to the scarcity of broken. The warm weather has influenced the price of No. 1 buckwheat, the demand for which is showing a decrease due to the shutting down of heating plants in the large stores, hotels, office buildings, etc. The demand for high grade culm continues to increase as engineers learn how to handle it.

The dealers who have been receiving their coal via routes which necessitated the coal leaving the state and then returning by way of New Jersey were pleased to learn this week that one of the roads had issued a new tariff making the same reduction as was ordered by the Pennsylvania Public Service Commission on all other rates last January. It is also reported that the other road routing via Philipsburg will also issue a reduced tariff shortly making the rate $1.50 on prepared sizes and $1.30 on pea, which is a reduction of 25c. on the former and 15c. on the latter.

Recent movements over Port Richmond and Coalport (Trenton) piers has been very slow, the latter point having been embargoed for several days. Trade in Philadelphia Harbor and points along the Delaware River are becoming uneasy of their chances to lay aside any stock as in previous years.

The prices per gross ton, f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide are as follows:

	Line	Tide		Line	Tide
Broken	$5.00	$6.15	Buck	$2.90	$3.80
Egg	4.15	5.25	Rice	2.40	3.40
Stove	4.40	5.60	Boiler	2.20	3.30
Nut	4.50	5.55	Barley	1.90	2.15
Pea	3.10	4.00			

Bituminous—There is at present a slight downward movement in prices, with changes of from 25c. to 50c. a ton. There seems to be no particular reason for the change, but the prices have been fluctuating for the last two weeks, moving downward one day, only to recover the next, with no price less than $5 for good coal at any time. In the Fairmont coals the recessions have averaged almost 50c., until now all the coal from that region with the exception of gas lump is bringing the same price. This is due to the continued heavy demand for slack coal, as all the mine-run is being screened in order to meet the demand for slack.

Coal has not been arriving here in very considerable volume of late and is scarce at times. The pinch is particularly evident with the purely brokerage houses and at this time the trading with them is somewhat light.

Most shippers seem inclined to the opinion that there is nothing to prevent coal from selling higher though they are practically a unit in hoping that it will sell for at least $1 to $2 a ton less than it is bringing now. They claim that it is more satisfactory to get and sell plenty of coal at $3.50 a ton than at a higher price, with little to handle.

Contract shipments appear to be in fair shape, due probably to the greatly reduced tonnage which has been covered. A number of the railways are coming into the market at this time for new contracts, as they have fairly large tonnages expiring July 1. At present there appears to be no inclination to make tenders, although it is generally conceded that the railroads will be compelled to pay a much higher price than last year. There are also a number of commercial contracts expiring about the first of the coming month and except in rare instances they are not likely to be renewed on a contract basis.

There continues to be a slight slackening of the retail yard business in soft coal, although prices continue to range from $9 to $10 a ton. Of late there has been a lack of good blacksmithing coal in the city, which has kept the retail price of that grade from $12 to $15 a ton.

Many opinions are heard as to the proposed pooling arrangement for pier coal as discussed at the conference of shipping interests here. It is generally agreed it will expedite the movement of coal over the piers, and the chief criticism against the adoption of the plan is from those operators who have spent thousands of dollars in advertising fine grades of coal, which under the present plan will entirely lose their identity. While in the original plan it was also proposed to limit the arrangement to tide coal alone it is difficult to see just how this can be done and it is felt by some that ultimately, if adopted it must also include both harbor and inside shipments.

The prices per gross ton, f.o.b. cars at mines, are as follows:

Georges Creek Big Vein	$6.00@6.25
South Fork Miller Vein	6.00@6.25
Clearfield (ordinary)	5.50@5.75
Somerset (ordinary)	5.50@5.75
West Va. Freeport	5.25@5.50
Fairmont gas lump	5.50@5.75
Fairmont gas, mine-run	5.25@5.50
Fairmont gas, slack	5.25@5.50
Fairmont lump, ordinary	5.25@5.50
Fairmont mine-run	5.25@5.50
Fairmont slack	5.25@5.50

BALTIMORE

Poor supply of bituminous at tide and market firm. Doubt on feasibility of pooling coal. Anthracite continues scarce.

Bituminous — Another breakdown in transportation of coal to this point, extending even to the Western Maryland Railroad, the only one to give consistently good service to the fuel industry recently, has tightened up the market here. Troop movement has been in part responsible for transportation delays, but a series of severe storms that caused washouts was the worst difficulty. Storm conditions also caused troubles at mining centers. In the Fairmont section there was some flooding reported, and from the Somerset region came reports of more or less serious floods in about half the mining properties.

Meanwhile consumers are again sailing close to the danger line in fuel supply and are insisting on deliveries. About ten days or so ago, when a heavy movement over the B. & O. made coal conditions here much easier, a certain coal man sent out twenty-five inquiries to industrial firms asking if they wanted coal. The past week he received twenty-three answers asking for quotations or offering good prices direct.

Spot prices here have naturally stiffened under this kind of pressure. Good spot coals here are worth on a mine basis of from $5.75 to $6, which is 75c. to $1 in advance of quotations from the mines for future deliveries. Prices to the trade at the mines are about as follows, the gross ton: Georges Creek Tyson, $5.25; Somerset, $5; Quemahoning, $5 to $5.25; Clearfield, $5; Freeport, $4.75; Fairmont gas, three-quarter, $5; run-of-mine, $5; slack, $4.75.

Decided doubt is being expressed among well informed coal men here concerning the plan of pooling fuel at tide in order to increase railroad and vessel dispatch. Difficulties of meeting the needs of particular consumers with coal cargoes made up from different sources of supply are among the problems. Inequalities between producers would also lead to abuses in favor of less desirable coals. The work of the committee, of which Jerre H. Wheelwright, president of the Consolidation Coal Co., is a member, will be watched with interest.

Anthracite—The coal trade here finds itself unable to get any of the so-called cheap hard coal. Premiums are still being paid in many cases, and discount coal is rare. Meanwhile there are thousands of tons of orders on the books for early delivery against the hundreds of tons that come through each week. All sizes are equally scarce.

HAMPTON ROADS

Dumpings slightly in excess of last week. Movement from mines has fallen off. No decision yet regarding pooling shipments.

There is no apparent change in prices, though demand is slightly easier. No departure from the ruling quotations is expected in the near future. Shipments are holding up well, for the week ending June

9 being slightly more than the previous corresponding period. The temporary improvement in receipts from the mines has passed and movement is now on the same hand-to-mouth basis as for some time past.

The recent meeting in Washington of the coal and transportation interests in regard to the pooling of Tidewater shipments did not result in any definite action. Of course, the railways are anxious to give the scheme a trial as it will result in a great saving in operating expenses as well as increased revenue from the larger tonnage carried. There is no doubt that this arrangement will release cars more quickly and will also result in quicker dispatch to boats. Other advantages are not so apparent. For one thing the coal operator will not have any inducement to prepare his coal for market, by the removal of impurities, etc., as it will readily be seen that unless some pressure is brought on his competitors to prepare their coal also the properly cleaned coal of the conscientious operator will not be a drop in the bucket. However, all coal shippers are anxious to coöperate to the fullest extent with the Coal Committee of the Council of National Defense and are awaiting their decision.

Prices for Pocahontas and New River run-of-mine for coastwise and export shipment are around $7.50 per gross ton. For bunker delivery about $8 plus 15c. trimming. Local deliveries around $7 per net ton on track in carload lots. Anthracite $9 per net ton delivered, less 50c. per ton for cash.

Dumpings at the Hampton Roads piers for the past several weeks were as follows:

	May 19	May 26	June 2	June 9
Nor. & West...	146,730	105,640	118,193	123,456
Ches. & Ohio...	117,143	83,666	114,536	91,387
Virginian.....	112,975	92,875	88,602	94,445
Total.....	376,848	282,181	321,331	309,288

Ocean Shipping

OCEAN FREIGHTS

The only charter during the past week worthy of comment was the fixture of the Danish steamer "Oregon," 7000 tons, 10%, June loading, for coals, from a United States port to Buenos Aires, at $30, with 1000 tons per day discharge. This boat was in hand on these terms for some time before she was fixed and it was a surprise that she was not chartered more promptly, as available steamers for South American coal are more than scarce, and as owners are finding permission from the British Government to perform such a voyage more and more difficult to obtain. We have chartered some additional steamers for coals to Havana at $5.50 per ton, which rate has not altered. To other destinations there has been very little change in freight quotations.

We would quote freight rates on coal by steamer as follows:

Europe	June 4	June 11
West Coast Italy	$100.00 about	$100.00 about
Marseilles.....	100.00 about	100.00 about
Spain(Atlantic)*	30.00@36.00	30.00@36.00
Spain(Med't'n)*	32.40@38.40	32.40@38.40
South America		
Montevideo....	$30.00@30.60	$30.00@30.60
Buenos Aires...	30.00@30.60	30.00@30.60
Rosario.....	31.68 about	31.68 about
Rio Janeiro.....	[3]30.00@32.00	[3]30.00@32.00
Santos.....	[3]34.00 about	[3]34.00 about
Chile(good port)	17.50@18.50	17.50@18.50
West Indies		
Havana.....	5.50 about	5.50 about
Cardenas, Sagua	6.75 about	6.75 about
Cienfuegos.....	7.50 about	7.50 about
Port au Spain...	10.75 about	10.75 about
St. Lucia.....	10.75 about	10.75 about
St. Thomas.....	8.75@9.00	8.75@9.00
Barbados.....	10.75 about	10.75 about
Kingston.....	7.00@7.25	7.00@7.25
Curacao[1]..	8.75@9.25	[1]8.75@9.25
Santiago.....	7.50 about	7.50 about
Guantanamo....	7.50 about	7.50 about
Bermuda.....	6.00@7.00	6.00@7.00
Mexico		
Vera Cruz.....	9.00@10.00	9.00@10.00
Tampico.....	9.00@10.00	9.00@10.00

* Spanish dues for account of cargo. [1] And p.c. [2] Or other good Spanish port. [3] Net.
W. W. Battie & Co.'s Coal Trade Freight Report.

Lake Markets

PITTSBURGH

Car supplies better but poorly distributed. Slack higher than mine-run. Eastern demand light.

Eastern demand is light, as it has been for two or three weeks. Line demand is good and there is also buying of considerable tonnages for Lake shipment. Car supplies on the whole are a trifle better than a week ago, but there is a great deal of complaint still. Steam and gas coal have separated more widely, minimum quotations being 25c. lower on steam and 25c. higher on gas than a week ago. Another divergence is that steam slack is bringing more than steam mine-run. There is an insistent demand for slack, as not enough Lake coal is being shipped to make a comfortable supply of slack, and some operators do not want to bother screening their coal, while there is now much coal being shipped to byproduct ovens, which will not take screened.

The Connellsville coke region is claimed to be getting fewer cars than before the order was issued to the railroads to give preference to Lake coal and ore movement and representations are being made at Washington which may result in some cars being diverted from the Lake coal trade.

The spot market is now quotable as follows: Steam, mine-run, $4.50@5; slack, $5@5.25; gas, $5.25@5.50; per net ton at mine, Pittsburgh district. Cars are scarcer on Pennsylvania and B. & O. divisions than on other divisions and there is particular difficulty in shipping east, variations in price being due chiefly to these divergences.

BUFFALO

Slight change in coal situation. Much complaint of car shortage. New rail restrictions hamper shippers. Anthracite as short as ever. Lake shipments keep up.

Bituminous—The jobbers feel that the difficulties could not well be greater. Almost every day some new restriction is given out, some of which are said to be by order of the Government. The Pennsylvania Railroad, for instance, does not now allow its coal cars to go beyond its switching limits on other roads in certain districts.

The actual movement of bituminous seems to be about as formerly. In spite of all sorts of restrictions the cars get through somehow and there is profit in the business. The outlook is for a continued good demand. Some reports have been given out that this or that big metal plant was about to shut down, but it usually turns out that the report was a mistake or that the slackness was temporary.

The demand is in all directions and so active that if the car movement was what it should be the trade would be brisk and easy. As it is, the shipper has to work hard to keep his customers supplied. An odd change has taken place of late in the handling of bituminous coal. Jobbers no longer depend on this or that mine or operator, but buy of anyone who has coal. When an order comes in the possibilities are sounded.

Changes of price are slight and usually special and temporary. The late Pennsylvania Railroad restrictions have hurt No. 8 and somewhat affected bessemer. Quotations are about the same as formerly:

Youghiogheny Gas.....	$6.25@6.75
Pittsburgh Steam.....	6.10@6.60
Ohio No. 8.....	6.00@6.50
Bessemer.....	5.95@6.45
Allegheny Valley.....	5.85@6.35
Cambria Co. Smithing.....	6.75@7.25
Pennsylvania Smokeless.....	6.85@7.35
All Slack.....	5.75@6.25
Cannel.....	6.50@7.00

All prices quoted are per net ton, f.o.b. Buffalo.

Anthracite—The demand continues as strenuous as ever, with certain jobbers joining the consumers in claiming that operators are holding back coal for speculative purposes. While this is true to a certain extent in the bituminous trade it would be hard to prove of the anthracite operators, especially since the Government shut off the big independent prices. The effort of the big anthracite shippers is to so distribute the coal they handle that it will best meet the needs of consumers, but as a rule they are all engaged in getting more than their just proportions, or claiming discrimination and worse if they do not get it.

Buffalo has no coal ahead yet and when it is found that the shippers are sending 100,000 tons a week up the Lakes, there are all sorts of complaints made, though this is a regular feature of trade when it is in this condition. Shipments by Lake for the week were: 120,500 tons, of which 47,100 tons cleared for Chicago, 41,200 tons for Duluth and Superior, 11,000 tons for Port Arthur, 7000 tons for Milwaukee, 6000 tons for Houghton, 3000 tons for Portage, 2600 tons for Ashland and 2600 tons for Sault, Ont.

Lake rates are still unsettled, but practically $1 to the Sault, 60c. to Chicago, 55c. to Houghton, Portage, and 50c. to Milwaukee, Duluth, Port Arthur.

TORONTO, CAN.

Dealers behind in filling orders. Yards practically empty. Railroad deliveries prompt. Civic coal storage scheme meets difficulties. No contracts being made.

Manufacturers and private consumers have large orders unfilled and as there is little or no coal in the yards, deliveries are being made from car to consumer as shipments arrive. There is now no complaint of delay in deliveries by rail which have latterly been prompt. Mayor Church returned this week from a visit to the coal mining centers of the United States in pursuance of the scheme for the civic storage of coal to provide for an emergency and reported that he had obtained quotations but that there were transportation difficulties to be met. It is considered doubtful whether the project will materialize.

Practically no contracts are being made. The Board of Education asked for tenders on about 10,000 tons of anthracite and only one answer was received, the price quoted being $8.75 per ton. The seller, however, would not guarantee delivery, stipulating that if additional freight rates were imposed the price must be increased proportionately and that the tender was conditional on coal supplies not being commandeered by the government.

Quotations for best grades per short ton are as follows: Retail anthracite egg, stove, nut and grate $9.50, pea $8.50, bituminous steam $9, slack $8, domestic lump $9, cannel $10. Wholesale, f.o.b. cars at destination three-quarter lump $8, slack $7.85, Pocahontas smokeless $8.36.

CLEVELAND

Market strong and prices advancing. Car supply improving. Lake shipments way behind those for 1916.

With the new Lake Erie Bituminous Coal Exchange now in operation, the car supply at the mines has begun to show an appreciable increase in most of the Ohio fields and this has stimulated the Lake end of the business and advanced prices from twenty-five to fifty cents per ton on all grades. While the local spot market has been quiet, it has been firm and prices have advanced along with Lake coal prices.

Figures compiled by M. A. Hanna & Co. show there was a shortage of about 300 coal cargoes to Lake Superior docks on June 1, as compared with same date in 1916. The amount on the docks at Duluth and Superior on May 1, 1916, was 2,108,223 tons. On May 1, 1917, the amount was 345,063 tons, showing a shortage this year of 1,763,160 tons. This added to the shortage in receipts this year, amounting to 580,903 tons, brings the total shortage on June 1 up to 2,344,063 tons. Strenuous efforts will have to be put forth during the balance of the navigating season if the Northwest is to be kept from the verge of a coal famine next winter.

Following an experiment tried out by the Baltimore & Ohio R.R. last week, the Ohio coal roads may set apart certain days of the week upon which all coal originating on their lines must be billed to the Lake. This scheme, if adopted by all the roads, will go a long ways toward overcoming the shortage at the Northwestern coal docks.

During the past week several contracts have been closed by Pittsburgh No. 8 operators with manufacturing plants, totaling 375,000 tons, at prices ranging from $3.25 to $4.50 per ton, f.o.b. mine, and one contract was made with a steam railroad calling for 150,000 tons of mine-run per year for three years at $1.85 per ton, f.o.b. mine.

Shipments from the Pittsburgh Number Eight district for the month of May totaled 904,000 tons, a decrease of about 135,000 tons compared with May, 1916.

Mayor Davis announced today that the city of Cleveland will not accept the proposition made by several Cleveland operators on June 2, to furnish coal for the municipal plants for one year from July 1 at $3.50 per ton, f.o.b. mine. Mayor Davis stated he would try and get the operators to make a better proposition.

Following are the market prices per short ton, f.o.b. Cleveland:

	Three-quarter	Mine-run	Slack
No. 8	$5.50	$5.50	$5.50
Cambridge	5.50	5.50	5.50
Middle District	5.50	5.50	5.50
Hocking	5.25	5.25	5.25

DETROIT

Scarcity of steam coal maintains prices at high level. Little anthracite comes to Detroit. Shipments by Lake are light.

Bituminous—Though under normal conditions June should be a period of sluggishness in the coal trade, the situation in the Detroit market continues nearly as tense as during the winter months. The available supply is described by jobbers as scarcely more than adequate to meet current requirements of steam plants, despite the fact that household consumption is now a negligible factor. The small amount of incoming free coal is practically all sold before it reaches the city and jobbers are finding the task of keeping customers supplied is difficult at times. The situation is made more unsatisfactory by restrictions on movement of certain types of cars on roads south of Toledo.

Prices are holding at a high level. Steam lump and egg, nut, pea and slack are quoted at about $5 at the mines. The price on mine-run ranges around $4.50 at the mines. With stock virtually out of the market, smokeless lump and egg is held at $6 and mine-run of the same description at $5.25 to $5.50. Damp weather encourages a light demand for domestic stock, which is not, however, being passed on from the retailers to wholesalers in very noticeable volume. Stocks in retail yards are not large and in some instances are very low.

Anthracite—Receipts of anthracite are very light. Though orders are reported to have been placed for considerable tonnages, the delivery is disappointingly slow. The conditions are preventing distribution which should now be under way and are causing anxiety, despite reassuring announcements as to plentiful coal supply.

Lake Trade—Insufficient car supply is being blamed for the light movement of coal to loading docks. While the shipping pool is said to have effected a certain amount of improvement by preventing cars being held, the car supply is still unsatisfactory. Shippers who delay loading coal because of inability to get together with vessel owners on carrying rates, it is reported will not be permitted to detain cars, as the shipping pool will load the coal aboard ship.

COLUMBUS

Good demand for all grades and production fair. Prices show little change from the previous week.

Demand from all lines of manufacturing is strong and there is an extra demand in some quarters, where purchasing agents are trying to accumulate a surplus. The strong Lake demand readily absorbs all surplus that appears in any locality or field. Railroads are taking a large tonnage for the movement of freight and buying on the part of public service concerns is also more active. There is some stir in public institutions and schools and many of these are at a loss for bids for the winter's fuel supply. In fact, the tendency of producers and shippers is to sell in the open market rather than to contract for any large tonnage.

Buying on the part of retailers is fairly active and dealers anticipate an earlier stocking period than usual. Retail stocks are not very large. Practically all of the domestic orders are for immediate shipment. Rural dealers are good buyers in anticipation of a good threshing trade. Retail prices are firm at the levels which have maintained for several weeks. There is still a rather wide range in prices. Anthracite is scarce and prices are from $9.50 to $10 and even higher. Domestic coke is also scarce and strong. Pocahontas is in good demand and the same is true of West Virginia splints.

Lake trade is active in every field. The recent pooling regulations have helped the trade to a great extent and wonderful efficiency in Lake boats and loading apparatus is being secured. Lake prices are high and inclined to advance. Reports from the Northwest show that little coal was carried over from the previous season.

Production is fairly good in most fields, due to an improvement in the car supply. This is especially noticeable in estern Ohio and Pomeroy Bend fields. The output in the Hocking Valley has been close to normal.

Prices on short tons, f.o.b. mines, are as follows:

	Hocking	Pomeroy	Eastern Ohio
Rescreened lump	$4.75	$5.00	.....
Inch and a quarter	4.75	4.75	$4.75
Three-quarter inch	4.50	4.75	4.50
Nut	4.50	4.50	4.50
Egg	4.50	4.50	.....
Mine run	4.25	4.50	4.50
Nut, pea and slack	4.25	4.25	4.25
Coarse slack	4.25	4.25	4.25

TOLEDO

Market more settled. Better deliveries in the Lake trade expected.

While the period of frantic buying seems over for the present at least, there is still a good demand for both domestic and steam coal. Steam users are not able to secure an extra supply to guard against a possible shortage. Dealers, are likewise holding off a little in buying, hoping for a drop in prices. Pocahontas remains high. West Virginia splints are about off the local market, with no fixed price.

Steam business is one of the most active departments of the trade as the factories have no large supplies and most of the buying is spot. Inquiries for contracts are coming in freely, but the jobbers and producers are not anxious to tie themselves up.

Deliveries at the local docks will be much better soon, as the T. & O. C. Ry., announces the receipt of 1000 new coal cars which will be kept on its lines and used in the Lake trade. The fact that for some time past Lake freighters were leaving port with only part cargoes has been alleviated to some extent by the railroads getting the car supply under better control.

	Mine-run	Lump	Rescreened-lump	Egg
West Va. Splint	$4.50	$4.75	.....	.....
Kentucky	4.50	4.75	5.00	5.00
Jackson Hill No. 2	4.75	.....	5.00	.....
Hocking & Pomeroy	4.25	.....	4.75	.....
Pocohontas	5.50	6.25	.....	6.25

CINCINNATI

Embargoes and congestion at terminals tend to upset the market, but prices have not weakened, although spotty. Demand remains good.

The pronounced congestion at various Northern and Western terminal points, due to inability of railroads to take care of shipments, brought about embargoes in all fields near this market last week and prevented the shipment of much coal. Fuel was fortunately not required in large volume, aside from that already on tracks, although demand has continued strong, considering the season and the prices prevailing.

The difficulty of quoting representative prices, which has been characteristic of the remarkable bull market of the past few months, has been even greater during the past week, and quotations indicate wide fluctuations. However, there is no real weakness in the market, and it is still a seller's market in every respect. The car situation has not materially improved, and unless the embargoes and other measures adopted help things somewhat, the summer months bid fair to be worse than the spring as the crop movements will require extra rolling stock and engines.

LOUISVILLE

Embargoes interfering with operations and depressing prices. Demand lessens. Car supply and labor conditions more unsatisfactory than ever.

Re-imposition of embargoes on northbound coal traffic has again slowed up business in Kentucky-Tennessee coals for the Northern market, while the trade below the river is holding back, expecting that continued embargoes will depress prices. Atlanta is reported full of coal which is selling slowly at $3.75, best grades, while Louisville and other markets are waiting for reductions. The supply of cars is less satisfactory, if anything, while since registration of males of military age there has been a marked tendency on the part of mine-workers to enlist without waiting for the draft.

The car supply and traffic conditions continue to be the key to the whole situation. This is instanced by Western Kentucky conditions. Louisville & Nashville mine-run is selling at $2.25 and Illinois Central mine-run, which can be delivered north of the river, is selling at $2.50. Meanwhile operators of Eastern Kentucky and Tennessee have about 30 days of high-priced business booked ahead and are selling surplus only from day to day, taking no orders for future delivery. A number of Western Kentucky operators are still giving all their attention to contract business.

Eastern Kentucky-Tennessee quotations are block, $5 for best grade and $4.50 for second and third grades; mine-run and steam, $4.75 for best grades and $4.25 for lesser grades. Western Kentucky quotes lump at $3@3.50; mine-run, $2.25@2.50; screenings, around $2, all prices f.o.b. the mines.

BIRMINGHAM

Lighter inquiries than for several weeks result in price shading in some instances, but no general decline in quotations. Car supply for the week averaged better than usual and mines operated steadier.

New business for the past week was lighter than for some time, and sales were reported in some instances at slightly lower figures than quotations of a week ago, but no general recession in prices was noted and none is expected. Sales of low grade mine-run coal were made as low as $2.75 per net ton mines, though $3 to $3.25 more nearly represented the market. The best grades of mine-run coal brought $4 to $4.25 per ton.

There is still a strong demand for domestic coal and retailers are anxious to get every car that they can buy. This grade of coal is very scarce, the mines being forced to carry over undelivered tonnage from month to month on contracts made during the early spring, and the tonnage of free coal is very limited. Quotations range from $4 to $5.50 per net ton mines for domestic lump, the latter figure having been obtained for high-grade lump the past week.

Mines were able to maintain a better schedule of operations than for some time and the car supply was reported as fair except during the last two days of the week, when some interruptions resulted from lack of equipment.

Coke

CONNELLSVILLE

Spot furnace coke higher. No disposition to contract. Efforts to have Washington order more cars to region.

The spot furnace-coke market has advanced sharply, owing to heavier demand. Supplies have been insufficient for some time and while the Steel Corporation simply banks furnaces when it cannot ship enough coke, the independents eke out by purchases in the open market. Car supplies are better on the P. & L. E. than on the Pennsylvania, and Pennsylvania cars, beginning last Friday, have been bringing up to $11, while Lake Erie equipment is $9.75@10.

There are no negotiations on contracts for second half, but in the case of a number of contracts expiring this month arrangements are likely to be entered into between the present parties for a continuance of shipments, subject to weekly or monthly adjustment of price. Operators do not care to tie themselves up for a half year at any price. Furnaces would willingly pay a high price if assured of getting deliveries, as pig iron is now $50, valley, for foundry, malleable and basic, and $53@55 for bessemer.

Furnaces have been so short of coke lately that representations were made in Washington, this resulting in representatives of furnace interests being invited to Washington for a conference last Friday with the Car Service Commission, and a formal statement is now being drawn up, urging that in the interest of full production of iron and steel the car supplies in the Connellsville region be increased.

The market is quotable as follows: Spot furnace, $9.75@11; contract, nominal, $8.50; spot foundry, $10@11; contract, $9.25@10, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended June 2 at 345,720 tons, an increase of 1095 tons, and shipments at 344,727 tons, an increase of 12,369 tons. For an increase to occur in the week of Memorial Day, is held to indicate that car and not labor supply is the sole restricting influence.

Buffalo—The trade is active, with prices stronger and in some cases advanced, as follows: For 72-hour Connellsville foundry, $11.50@12; for 48-hour furnace, $10.50@11; for low grades and stock, $9.50@10. The difficulty in getting cars seems to be the reason for the extra strength and this promises to continue. Ore shippers are eager for tonnage and have this month paid $1.75 a ton to Lake Erie ports, as against $1 regular and 50c. in former seasons.

Chicago—The coke market is in about the same position as it has been, furnace

and foundry ranging from $9 to $10.50 at ovens, and domestic sizes off the market.

Birmingham, Ala.—Although a large number of coke contracts expire July 1, it is understood that few renewals have been made as yet. The demand for coke is so strong that producers, like the coal men, are not anxious to execute contracts, and the offensive is left with the consumer. Contract quotations are around $12.50 per net ton, ovens, for foundry coke, and $15 for spot business. Furnace-coke requirements are exceedingly heavy and will be increased by the placing in blast of several new furnace stacks. The Sloss-Sheffield Steel and Iron Co. now has the entire 288 beehive ovens at its City Furnace plant in operation.

Middle Western

GENERAL REVIEW

Slight break in prices on New River and Pocahontas. Illinois and Indiana demand keen with little change in prices except a slight reduction on steam sizes from Southern Illinois. Car supply not showing any improvement. Lake shipments far below normal.

Some fluctuation in coal prices has been noted the past week, especially on New River and Pocahontas, which has declined 50c. This has not affected the market to any great extent as arrivals are no more numerous than they have been for the past two months. Prices for Indiana and Illinois prepared sizes have been very firm, and demand keen, the mines being operated as near to capacity as car supply will permit. A slight decrease in steam prices is noted, the southern Illinois mines making sales 50c. per ton below last week, though other districts report no change in price.

The dock companies continue to be concerned regarding the shortage of boats, and the small supply compared to previous years. During the month of May westbound shipment through the Soo Canal amounted to 1,204,117 tons of bituminous and 244,510 tons of anthracite. This will have to be increased materially if the northwest is to be supplied with 12,000,000 or more tons, the usual amount handled from the docks for distribution in the Northwest. Dock companies are shipping out coal as fast as it comes in and are unable to secure any for storage due to slowness of boat arrivals.

All-rail shipments of anthracite are less than one half the normal movement. Apparently the Eastern trade is being taken care of with available car supply, and the railroads are, no doubt, congested with coal and cannot make much headway.

CHICAGO

Demand continues strong with variable prices. Slight decrease on steam sizes, and lower prices noted on Pocahontas and New River coals. Indiana and Illinois mines operating little better than 50% capacity due to shortage of railway equipment.

The Chicago market is uncertain and spotty; some coals are commanding slight premium prices while others show a reduction, and as a result the market is uncertain. There is a firm demand on all grades and in the Harrisburg district of Southern Illinois there was an advance of 25c. on lump, furnace and nut sizes, though in other nearby fields the same sizes declined the same amount.

The Franklin County mines have operated about 65% of full time the past week, the loss being due to shortage of cars. Buyers of these coals are very much interested in the announcement of the sale of the United Coal Corporation's mines to the Old Ben interests. The latter now control 42% of the county tonnage, their production amounting to more than 4,200,000 tons annually. All domestic sizes are firm on basis of $3.50 for June, and demand is coming from a number of new districts. The shipments for May exceeded those of the same month last year by almost 600,000 tons. The orders on hand calling for shipment the ensuing week are double the rated capacity of the mines.

Saline and Williamson County fields are having an excellent demand for all sizes, quite a bit of this coal is going into storage. Some easier prices are noted on steam sizes, especially where this coal comes in competition with central Illinois.

Springfield district mines are operating as near capacity as car supply will permit. Some decrease in the price of screenings and other steam sizes are noted, due to a less demand for lump.

The demand for Fulton and Peoria Counties coal is very good, and car supply is excellent. Prices are firm and the market is being extended, considerable business coming from the Northwest, territory not generally covered by these coals.

Bureau, LaSalle, Grundy and Will Counties report plenty of orders and fair supply of cars. Demand is good for prompt shipments at no change in price. More than half of this coal is contracted, and used in territory adjacent to the mines.

The Indiana mines are working a little better than half time, and demand is as strong as at any time during the spring months. Quite a lot of this coal is finding new markets in upper Michigan and western Ohio. Some modification of steam prices is noted, 25c. per ton less than last week's offerings being made in some instances.

Some smokeless coal arrived in Chicago the past week, and prices are somewhat lower than quoted during the past four weeks. Chicago retailers are endeavoring through the Chicago Coal Merchants' Association to get extra shipments, and are much concerned over the report that the government is about to adopt a zone system for the distribution of coal and not allow certain grades to move outside of certain zones. It is feared that this would eliminate Pocahontas from this market.

Due to the fact that the West has not been getting any Hocking coal to speak of there is no change in price on that grade. This is also true of splint.

Shipments of anthracite to Chicago have increased to some extent, but are far below those of last year. Arrivals via boat have helped the situation. Prices for June shipment are as follows: Pea, $2.85; nut, $4.35; stove, $4.25; egg, $4.00. Chicago retail price is $10.50 delivered, all grades commanding the same price.

Quotations in the Chicago market are as follows, per net ton f.o.b. cars at mines:

	Springfield	Fulton and Peoria Cos.	Clinton and Sullivan Cos.	Green and Knox Cos.	Carterville
Domestic lump	$3.10@3.50	$3.00@3.25	$3.25@3.75	$3.00@3.50	$3.50@3.75
Steam lump	2.75@3.25	2.75@3.25	3.00@3.75	3.00@3.50	3.00@3.50
Egg	3.00@3.50	3.00@3.25	3.25@3.75	3.00@3.50	3.50@3.75
Nut	3.00@3.50	3.00@3.25	3.25@3.75	3.00@3.50	3.50@3.75
Mine-run	2.75@3.00	2.75@3.00	3.00@3.50	2.75@3.25	3.00@3.50
Screenings	2.75@3.00	2.75@3.00	2.75@3.00	2.75@3.25	3.00@3.50

	Williamson and Franklin Cos.	Saline and Harrisburg	Poca. and W. Va. Smokeless	Penna. Smokeless	Eastern Kentucky
Lump	$3.50@3.75	$3.50@4.00	$5.50@5.75	$5.50@5.75	$5.00@5.75
Egg	3.50@3.75	3.50@4.00	5.50@5.75	5.50@5.75	5.00@5.75
Nut	3.50@3.75	3.50@4.00	.....	.....	5.00@5.75
No. 1 nut	3.50@3.75	3.50@4.00	.....	.....	.....
No. 2 nut	3.50@3.75	3.50@3.75	.....	.....	.....
No. 3 nut	3.25@3.75	3.00@3.50	.....	.....	.....
No. 1 washed	3.50@4.00	.....	.....	.....	.....
No. 2 washed	3.50@4.00	.....	.....	.....	.....
Mine-run	3.00@3.50	2.75@3.50	4.75@5.50	4.75@5.00	5.00@5.50
Screenings	3.00@3.75	3.00@3.50	.....	.....	.....

Hoking Lump $4.25@4.50. Splint Lump $4.50@4.75.

General Statistics

IMPORTS AND EXPORTS

The following is a comparative statement of coal imports and exports of the United States for March, 1916-17, and for the 9 months ended March, 1915-16-17, in long tons:

IMPORTS	March 1916	March 1917	9 Months 1915	9 Months 1916	9 Months 1917
Anthracite, total	36	85	12,132	7,165	1,523
Bituminous, total	147,477	115,578	1,084,028	1,260,665	1,037,991
United Kingdom	160	3,209	29,950	6,398	5,482
Canada	140,393	110,446	842,440	1,108,195	951,748
Japan	.....	.....	68,251	60,420	59,696
Australia	6,039	1,923	141,880	83,956	19,395
Other countries	885	.....	1,507	1,696	1,670
Coke	6,392	2,074	79,700	43,281	20,955
EXPORTS					
Anthracite total	309,955	364,587	2,453,331	2,694,277	3,017,537
Canada	301,620	357,726	2,411,403	2,588,222	2,955,215
Argentina	.....	.....	212	1,931	2,684
Brazil	.....	212	6	2,472	1,555
Uruguay	.....	200	.....	600	200
Other countries	8,335	6,449	41,710	101,052	57,883
Bituminous total	1,069,218	1,322,127	9,962,640	13,456,897	14,021,754
Italy	142,323	72,332	706,960	2,196,516	927,082
Canada	546,107	789,730	6,581,129	7,203,337	8,877,277
Panama	26,957	41,608	218,397	385,600	389,207
Mexico	21,391	26,492	305,953	164,172	150,767
Cuba	116,195	151,246	781,559	921,697	1,064,079
Other West Indies and Bermuda	46,124	55,507	323,960	456,847	373,153
Argentina	60,780	44,855	217,797	482,705	634,222
Brazil	81,394	47,869	273,015	461,084	564,464
Uruguay	2,250	10,696	40,767	99,514	94,150
Other countries	25,697	81,792	513,103	1,085,425	947,353
Total coal	1,379,173	1,686,714	12,415,971	16,151,174	17,039,291
Coke	93,980	130,079	403,151	711,768	804,026
Bunker coal	.....	.....	.....	.....	.....

BALTIMORE & OHIO R.R.

The following coal and coke tonnage was moved over the Baltimore & Ohio R.R. and affiliated lines during the months of March and April, 1916-17:

	March 1917	March 1916	April 1917	April 1916
Coal	2,851,721	2,763,165	2,726,422	2,510,180
Coke	318,194	400,518	309,823	355,268
Total	3,169,915	3,163,693	3,036,245	2,865,456

Foreign Markets

GREAT BRITAIN

May 24—The market continues in an easy condition, stocks being plentiful. The Whitsun holidays, extending over three working days, will have a very appreciable effect on the market, as it will give collieries an opportunity of working off their stocks.

Best Welsh steam	Nominal
Best seconds	Nominal
Seconds	$6.96@7.20
Best dry coals	6.00@6.24
Best Monmouthshires	6.72@6.96
Seconds	6.24@6.48
Best Cardiff smalls	4.56@4.80
Cargo smalls	4.32@4.56

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport both net, exclusive of wharfage.

Freights—Tonnage is still very scarce, and markets in all directions are very firm. Nominal rates continue as quoted, but in some special cases it is possible for tonnage to get greatly increased rates, as for instance Italy.

Gibraltar	$21.00	Port Said	$28.80
Marseilles	21.54	Las Palmas	18.00
Genoa	24.30	St. Vincent	19.20
Naples	23.58	River Plate	26.40
Alexandria	28.80		